EDISON ELECTRIC INSTITUTE BULLETIN

VOLUME 1 DECEMBER 1933 NUMBER 9

STATISTICAL DATA OF THE ELECTRIC LIGHT AND POWER INDUSTRY

Compiled Monthly by the Edison Electric Institute—Covers 100% of the Industry

DURING THE MONTH OF OCTOBER

	1933	1932	%
Kilowatt-hours Generated* (net)			
By fuel	4,600,980,000	4,080,085,000	+12.8
By water power	2,324,391,000	2,430,665,000	− 4.4
Total kilowatt-hours generated	6,925,371,000	6,510,750,000	+ 6.4
Additions to Supply			
Energy purchased from other sources	240,926,000	249,174,000	− 3.3
Net international imports	74,748,000	37,362,000	+100.1
Total	315,674,000	286,536,000	+10.2
Deductions from Supply			
Energy used in electric railway depts.	59,589,000	65,061,000	− 8.4
Energy used in electric and other depts.	87,044,000	98,360,000	−11.5
Total	146,633,000	163,421,000	−10.3
Total energy for distribution	**7,094,412,000**	**6,633,865,000**	**+ 6.9**
Energy lost in transmission, distribution, etc.	1,314,408,000	1,307,549,000	+ 0.5
Kilowatt-hours sold to ultimate consumers	**5,780,004,000**	**5,326,316,000**	**+ 8.5**
Sales to Ultimate Consumers (kw-hrs)			
Domestic Service	1,002,786,000	984,391,000	+ 1.9
Commercial—Small light and power (retail)	1,067,991,000	1,065,229,000	+ 0.4
Commercial—Large light and power (wholesale)	3,068,000,000	2,652,944,000	+15.6
Municipal street lighting	191,047,000	198,749,000	− 3.9
Railroads—Street and interurban	331,749,000	330,778,000	+ 0.3
Railroads—Electrified steam	58,363,000	45,009,000	+29.7
Municipal and miscellaneous	60,068,000	49,216,000	+22.0
Total sales to ultimate consumers	5,780,004,000	5,326,316,000	+ 8.5
Total revenue from ultimate consumers	$150,390,400	$151,550,900	− 0.8

DURING TWELVE MONTHS ENDING OCTOBER 31st

Kilowatt-hours Generated* (net)			
By fuel	46,429,429,000	47,720,497,000	− 2.7
By water power	31,974,063,000	30,213,104,000	+ 5.8
Total kilowatt-hours generated	78,403,492,000	77,933,601,000	+ 0.6
Purchased energy (net)	2,828,309,000	2,739,459,000	+ 3.2
Energy used in electric railway and other departments	1,916,809,000	2,117,507,000	− 9.5
Total energy for distribution	**79,314,992,000**	**78,555,553,000**	**+ 1.0**
Energy lost in transmission, distribution, etc.	14,199,733,000	13,759,928,000	+ 3.2
Kilowatt-hours sold to ultimate consumers	**65,115,259,000**	**64,795,625,000**	**+ 0.5**
Total revenue from ultimate consumers	$1,777,731,600	$1,858,592,100	− 4.4
Important Factors			
Per cent of energy generated by water power	40.8%	38.8%	
Average pounds of coal per kilowatt-hour	1.45#	1.49#	
Domestic Service (residential use)			
Average annual consumption per customer (kw-hr)	604	601	+ 0.5
Average revenue per kw-hr (cents)	5.51¢	5.60¢	− 1.6
Average monthly bill per domestic customer	$2.77	$2.80	− 1.1

BASIC INFORMATION AS OF OCTOBER 31st

Generating Capacity (kw)—Steam	24,069,000	24,155,100	
—Water power	8,974,000	8,888,500	
—Internal combustion	461,300	450,500	
Total generating capacity in kilowatts	33,504,300	33,494,100	
Number of Customers			
Farms in Eastern Area (Included with Domestic)	(505,956)	(500,031)	
Farms in Western Area (Included with Com'l—Large)	(204,961)	(206,433)	
Domestic Service	19,921,921	19,908,513	
Commercial—Small light and power	3,689,316	3,696,053	
Commercial—Large light and power	530,532	555,871	
All other ultimate consumers	65,944	66,942	
Total ultimate consumers	24,207,713	24,227,479	

*By courtesy of the U. S. Geological Survey with deductions for certain plants not considered Electric Light and Power Enterprises.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 1 DECEMBER, 1933 No. 9

THE CODE CONFERENCE AT ST. LOUIS

Vigorous Protests Against Government Competition—Fair Play Wanted for the Industry

Approximately 200 representatives of the light and power industry from all sections of the country attended the conference to consider and discuss the provisions of a permanent Code of Fair Competition sponsored by the Institute and held at Hotel Jefferson, St. Louis, Monday and Tuesday, December 4 and 5. Of the number registered, 168 were affiliated with companies which are members of the Institute and 25 were representatives of non-member companies.

Following a meeting of the Board of Trustees on Monday afternoon, the formal proceedings took place Tuesday morning at a meeting called to order by President Cortelyou. His opening address, reprinted in full in another part of this issue, contained a vigorous protest against government competition through public ownership and called for fair play for the industry in its effort to advance the administration's National Recovery Program.

The Code Committee, whose personnel was reported in the November BULLETIN, had ready for the conference a draft of the proposed Code, which was explained by P. S. Arkwright, Chairman of the Code Committee. Over a period of about six weeks, Mr. Arkwright informed the conference, members of the committee, in collaboration with a lawyers' committee and assisted by Judge William L. Ransom as counsel, had worked in an effort to prepare a draft code which would serve as a basis for discussion at the conference.

Free discussion of the Code was engaged in during the afternoon following the meeting, when the Code Committee sat continuously hearing comments and objections.

At the Tuesday evening session, held in the auditorium of the Union Electric Building, the Code, with some modifications, was put into shape for presentation by the Code Committee to the National Recovery Administration at Washington. As this issue goes to press the Code Committee is conferring with the Recovery Administration, and it is expected that NRA authorities will shortly release the Code for publication.

W. A. Mullendore, Executive Vice-President of the Southern California Edison Company, made a strong plea that the Code, as a measure of justice to customers and investors in the industry, carry provisions to limit governmentally subsidized and tax exempt competition. Roundly applauded at the close, Mr. Mullendore's address had evidently struck a highly responsive note.

In expressing the viewpoint of the smaller utilities, A. W. Conover, Vice-President Oklahoma Utilities, said that they could operate under sensible code provisions, but that regulations practicable in larger systems could not be applied to smaller ones without working great hardships. He pointed out that longer working hours in small communities had been recognized in other codes. Mr. Conover strongly urged that the leaders of the industry undertake organized and aggressive effort to combat the spread of anti-utility sentiment by officers of government. Mr. Conover's address to the conference, as well as Mr. Mullendore's, appears in this issue.

The attitude of fiduciary investors toward threats against the industry was indicated by a letter from Frederick H. Ecker, President of the Metropolitan Life Insurance Company of New York, to President Cortelyou of the Institute. This letter, read before the conference, follows:

DEAR MR. CORTELYOU:

"I have been considering the situation of the operating public utilities and their bondholders in view of the recent developments. With the added burdens of Federal, State and local taxes and the evident policy of the Federal Government to advance monies at random for the construction of competing utility plants and transmission lines, the industry is facing very serious problems.

"The various departments of the Government seem to me to be asking far too much from the utilities in imposing increased taxes, asking increased labor costs, and demanding lower rates, and at the same time devoting the proceeds of taxes to building plants for active competition with the utilities under conditions where the taxpayers make good the deficiencies under the rates.

"Every plant and concern in the electric business should certainly be subjected to the same requirements as to wages, hours, etc. All plants should be required to observe accurate standards of accounting. Government money should not be used to finance plants or transmission lines to compete with existing private concerns.

"These things all seem so obvious to me that I cannot understand how any one could doubt or question them. They are the essence of fair play.

"Unless many millions of bonds which have been issued and sold to investors, in good faith and with the approval of the State Commissions are now to be destroyed, it seems to me that the concerns whose bonds are now so widely held by fiduciaries owe it as a solemn duty to stand firmly for fair play in these matters."

OPERATING COMMITTEE MEETING

Atlantic City Recommended for 1934 Convention of the Institute

Plans for the 1934 Convention of the Institute and the authorization of a Medal to be presented for successful resuscitations from electric shock were among the matters on which action was taken at the November 15th meeting of the Operating Committee, held at the general offices of the Institute with President Cortelyou, Chairman of the Operating Committee, presiding.

1934 Convention

The Committee approved the recommendation, by a special Convention Committee appointed by the Chairman, that the 1934 Convention be held in Atlantic City early in June. It was also voted that the Convention meetings, with the exception of an executive session, should be open to the public. The Convention Committee appointed by Mr. Cortelyou consisted of Messrs. J. E. Davidson, B. J. Denman, T. A. Kenney, J. F. Owens and P. S. Young.

The proposal for the foundation of a medal to be presented to employees of member companies who have successfully resuscitated by the Prone Pressure Method persons suffering from electric shock met with general approval. It was voted that the medal should be known as the Edison Electric Institute Medal, and that it would be eligible for presentation in merited cases occurring since the organization of the Institute on January 12th, 1933, as well as for future cases. The Medal will be administered by the Prize Awards Committee through a committee of judges.

Central Station Exhibit

A letter from Mr. E. W. Lloyd, Chicago, Chairman of the Century of Progress Exposition Central Station Committee, recommended, in view of its great success this year, that the Central Station Exhibit at the Exposition be continued along with the Exposition next year and asked approval of a plan to call upon the electric light and power companies which contributed to the exhibit this year to make further contributions to maintain the exhibit another year. The Operating Committee concurred in the recommendation that the Central Station Committee should proceed with the plan.

Commercial Activities

Excellent progress under the lighting promotional program—the Better-Light, Better Sight activity—approved by the Operating Committee last June, was reported by Mr. George E. Whitwell, Chairman of the Sales Committee, who asked and received authority to continue the program through February and possibly into March. Mr. Whitwell also outlined another sales activity proposed to follow after the lighting program, which would have as its central theme the value of electricity and might be known as the "All Electric Kitchen" program.

The Committee voted that the Institute should participate in the work of the U. S. National Committee of the International Commission on Illumination, and also voted that the Institute should contribute to membership in the Producer's Council.

Code of Fair Competition

The status of the Code of Fair Competition for the electric light and power industry was reviewed, and Judge William L. Ransom reported the progress being made in drafting a new Code. As was previously reported in the BULLETIN, the officials of the National Recovery Administration have expressed a desire to proceed with a hearing on a Code for the industry as soon as practicable.

The Committee also approved the nominations to membership on the Insurance Committee, the following gentlemen being named to that Committee: Messrs. G. H. Bourne, I. M. Carpenter, F. C. Gordon, F. H. Deckman, Harry P. Hood, J. H. Nickell, A. W. Reid and H. E. Wing. Mr. Bourne is Chairman of the Insurance Committee.

Those in attendance at the Operating Committees were Messrs. Geo. B. Cortelyou, Chairman; H. C. Blackwell, G. H. Clifford, J. E. Davidson, B. J. Denman, W. J. Hagenah, S. Hosmer, A. H. Kehoe, T. A. Kenney, H. P. Liversidge, J. F. Owens, E. Reynolds, Jr., B. F. Weadock and P. S. Young, and by invitation, Messrs. G. E. Whitwell, H. S. Bennion and C. E. Greenwood.

Medals for Resuscitation to be Given by Institute

The Operating Committee has authorized the establishment of a Medal designed for presentation to employees of member companies of the Institute who, by the Prone Pressure Method, have successfully resuscitated individuals suffering from electric shock.

The Medal will be known as the "Edison Electric Institute Medal" and is intended to serve both as a recognition of the act and to encourage and maintain interest in the Prone Pressure Method of Resuscitation. All successful resuscitations by member company employees since the organization of the Institute on January 12, 1933, will be eligible for consideration for the Medal.

The Medal will be administered by the Prize Awards Committee, Mr. Frank W. Smith, Chairman, through judges appointed by the Committee. Full particulars respecting the award of the Medal will be announced in an early issue of the BULLETIN, and through direct communication to member companies by Mr. Smith.

Safety Grounding

Upon the dissolution of the National Electric Light Association, one of the subjects recommended by the Accident Prevention Committee for continued study was safety grounding. Considerable time and study had been given to this subject with a view to determining safe grounding practices but the information obtained had not been assembled and prepared for presentation or use. However, definite plans have now been made for completing the investigation and compiling the information for use by the industry.

This will be done by the Electrical Equipment Committee of the Edison Electric Institute under the sponsorship of S. M. Dean, of the Detroit Edison Company. The work which Mr. Dean has undertaken will consist of a complete technical investigation on the general subject of grounding, and will include safety grounding as one of the important parts. It is planned to investigate the maximum resistance of artificial grounds that will afford the necessary protection, the grounding of non-current carrying metal parts of utilization equipment, the desirability of distributed ground mass, relation of building steel

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THE ELECTRIC INDUSTRY'S PART IN NATIONAL RECOVERY

By GEORGE B. CORTELYOU

President of the Edison Electric Institute

An address delivered at the General Conference of the Electric Light and Power Industry to Consider and Discuss the Provisions of a Code for the Industry, St. Louis, Mo., December 5, 1933.

We have come together in this city for conference. Matters worthy of the best judgment and experience of the Industry require development and decision. It is altogether fitting that these matters be discussed and understood by a representative assembly of the Industry as a whole, by the small companies and the large, by those who are members of the Edison Electric Institute and those who are not, and by the representatives of all parts of the country—North, South, East and West. So we have come from many states to this centrally located city, convenient of access from all parts of the country, to talk things over and take counsel together.

The Edison Electric Institute, which has been performing useful functions as to the technical and statistical side of the Industry, has been glad to serve as the means of bringing you together. For the purposes of this meeting, it makes no difference whether you are a member of the Institute or not; or whether you represent here a large company or a small one. If you are engaged in any capacity in the business of rendering electric service to the public, we are glad to have you take part in our deliberations, and we extend to you all a very hearty welcome.

Those who have been charged with responsibility for initiating the work of drafting a suitable Code for consideration are grateful for your presence and your participation. Only through the convening of such a genuinely representative gathering, bringing together the men who know the operating conditions in all parts of the country, could such a task be brought to a satisfactory completion.

The Purposes of This Conference

I shall first read the Call for this meeting, because it states very clearly and concisely the purposes for which we are assembled here, the matters on which the Code Committee felt a need for your help:

November 25, 1933.

TO THE CHIEF EXECUTIVES
ELECTRIC LIGHT AND POWER COMPANIES

The Code Committee of the Edison Electric Institute wishes to ascertain the views and experience of the electric light and power industry to the fullest possible extent, to aid and guide the Committee in its work of preparing a draft of an Electric Code for consideration at the public hearing before the National Recovery Administration in December. Particularly is there need for ascertaining the operating experience of all of the companies, large and small, under the provisions now in effect as to minimum wages and maximum hours, and the views of the Industry as to what changes, if any, ought to be recommended in order to meet the diverse conditions under which our service is rendered throughout the country.

A meeting to consider and discuss with the members of the Code Committee the matters involved in the drafting of a suitable Code for this Industry is hereby called, to be held at the Jefferson Hotel, St. Louis, Missouri, December 5th and 6th, commencing at 10 a.m. on Tuesday, December 5th. You are invited to attend and to bring or send operating representatives of your Company whose information and judgment would be helpful on these Code matters.

The officials of the National Recovery Administration have determined that a Code should be submitted promptly by this Industry, and hearings will be required to start about December 20. The Code Committee is seeking to cooperate and comply with the wishes of the Administration.

The Code Committee feels that all electric light and power companies in the United States, whether members of the Institute or not, ought to take part in this conference and make known to the Committee their views and wishes as to the drafting of the Code and its presentation in Washington, to the end that the Committee may ascertain the conditions prevailing in different parts of the country and be governed by the ascertained wishes of the Industry.

We hope very much to have your assistance and cooperation in this matter. If the preliminary work of the Code Committee reaches such a stage that this is practicable, a draft of the material tentatively under consideration will be sent you in confidence, within a few days. In any event, the Committee will have material ready for concrete consideration in St. Louis on December 5th.

Very truly yours,

(Sgd) BERNARD F. WEADOCK,
Vice-President and Managing Director.

It is of the essence of the situation that in an Industry which serves practically every community in the United States under a variety of conditions which do not obtain in localized industries, such matters as the requirements in respect to wages and hours, and the necessary provisions to insure that companies may fulfill their paramount public obligations of adequate and continuous service, must take into account the knowledge and experience of those charged with operating responsibility.

Public Importance of the Matters to be Considered

The subjects indicated in the Call for this meeting vitally affect our customers, our employees, our investors, and the great public of America. We need to approach and discuss them broadly and fairly, conscious of the needs of the Nation, willing as always to do our part in a patriotic and public-spirited way that will truly advance the National welfare.

At the same time, none of us can be unmindful that our duties as trustees of the welfare of millions of employees, customers, and investors, require us to face the facts of the situation realistically and to see where they lead, to the end that no false or unsound step shall be taken. We deliberate and act in these matters as the trustees of all those whose interests are at stake, and we should not fail to stand fast for the essentials of sound policy. Truly this is a situation which calls for the mature judgment and the restrained counsel of such a representative conference of the whole Industry.

The National Industrial Recovery Act

We have been living in a time of stress and change, when experimentation with new expedients has carried the Nation far from its accustomed standards and methods. We of this vital Industry have been summoned to stand by and take our place in the trial of new forms of industrial planning under public control.

In June of 1933, there was enacted by the Congress and approved by the President of the United States the now historic measure known as the National Industrial Recovery Act. In Title I of that enactment there was declared the policy of the Congress, and provision was made for the establishment of administrative agencies to effectuate the declared policy. The Recovery Act and what has been and is being done to carry out its purposes have brought a host of new problems,

and some new perplexities, into the councils of American Industry. Many of the questions which confront us today are similar to those with which other industries are dealing; in addition, we have others which are peculiar to our status as regulated public utilities long subjected to State supervision in many respects.

One of the primary purposes of the Recovery Act was to increase the purchasing power of the American public, through extending employment generally and raising wages wherever practicable. It was sought to enable the employment of a large number of men and women, in each industry, and thereby to add to the purchasing power of labor and in turn to give an impetus to recovery in agriculture and all lines of production and trade. So a machinery was set up for bringing about the addition of employees to the payroll within each industry, even though that involved the imposing of increased payroll costs.

The Recovery Act Pre-supposes Action Under Its Authority to Eliminate Unfair Competition That Harasses Any Industry

Recognizing that increase in the amounts paid by an industry to its employees would ordinarily compel a corresponding advance in prices, the Recovery Act sought to erect provisions which would in many instances, or to at least a considerable extent, enable increased payroll costs to be met without immediate and general advances in prices. The theory of the Recovery Act was and is that within and affecting each industry there are conditions of unfair competitive practice and uneconomic trade methods which produce substantial losses, and that if these ruinous competitive practices and losses could be eliminated through cooperative action within each industry, backed by the authority vested in the National Recovery Administration, the resources would thereby be in many or most instances provided from which the increased payroll costs could be met without an immediate, corresponding advance in the prices charged to the public.

I do not believe it could fairly be said that the underlying concept of the Recovery Act was that the increased operating expenses due to extending employment and increasing the purchasing power of the employees should primarily be borne by either the investors, through decreased returns, or by the consumers through increased prices. The real concept was to eliminate unfair competition and ruinous trade practices through duplication of capacities. Merely to increase the purchasing power of labor by decreasing the purchasing power of investors and consumers was not offered, and could not have been offered, as a sound expedient. Diversion and redistribution of purchasing power is not increase in purchasing power. The Recovery Act and the Codes under it have had to seek a sounder course.

The Recovery Act was presented, and is to be tested and judged, as a measure of industrial statesmanship which would enable the elimination of unfair competition and economic waste from each industry, and would in particular forestall the construction of additional productive capacity in any industry until the existing capacities have been fully utilized. Duplication of capacities was recognized as inflicting economic losses ultimately borne by the patrons. To provide the means of forestalling such duplications and of ending the unfair competition which beset many industries, was regarded as a sound means of enabling increase in employment without compelling immediate advances in prices.

The Electric Industry Has Cooperated Heartily Under the Recovery Act

This is neither the place nor the time for general economic debate as to the wisdom or soundness of the policy underlying the Recovery Act. Whatever may be our individual views on these matters, we recognize the Recovery Act as embodying the present National expedient, the National mandate, the Nation-wide program in which we, as good citizens, have been cooperating heartily, and in which it will be our desire and our duty to continue to cooperate actively until the Act has accomplished its major purposes or until its unsoundness has been demonstrated or it has expired by limitation.

Speaking a personal view, I express the opinion that as long as the Recovery Act remains a part of the law of the land, we, of this Industry, should seek patriotically to do what we can to further its policy and purposes, so long as the vast powers sought to be conferred by the Act are used fairly in the furtherance of recovery and are not invoked as means of oppression and destruction.

When the President of the United States asked these companies last summer, along with all other employers, to sign voluntary Agreements under the Act, to advance its purposes pending the development of definitive Codes applicable to each industry and trade, nearly all of the members of this Electric Industry voluntarily and freely signed such agreements, complied with them in good faith, and cooperated in the Nation-wide program to extend employment. Companies which did not actually sign the Agreement generally complied nevertheless with its provisions and did their part in the furtherance of its program.

Some of the companies have been challenged because they did more than was required by the letter of the Agreement, and sought to comply with its spirit as well as its letter. This Industry may justly be proud of its record of substantial contribution to the National Recovery program without a rate increase because of the increased costs in any instance of which I have knowledge. In many other industries, conditions of unfair competition have been dealt with and prices have been advanced as well. In our Industry, neither has yet taken place, and the Industry does not seek recoupment through rate increases when the fairer means of remedy are provided by the Act. I add here that I believe this Industry is willing to continue and extend that cooperation, if the declared policy and purposes of the Act can be effectuated in the provisions of the Code to be promulgated under the Act.

Our Pledge to Cooperate in the Submission of a Code

Each and every member of the Industry who signed the President's Reemployment Agreement solemnly obligated itself (by Paragraph 11 of that Agreement):

> "To cooperate to the fullest extent in having a Code of Fair Competition submitted by his industry at the earliest possible date. * * *"

We seek here to complete our preparation to comply with the policy of the Recovery Act.

The National Recovery Administration has indicated its desire that a proposed Code be submitted in time to permit the required public hearing to be conducted and completed in time for the approval of the Code before the New Year. The electric Industry will, I am sure, be able and ready to comply with that request.

The Electric Industry and the Recovery Act

How do the electric operating utilities fit into the picture and policy of the Recovery Act? Since that question may have a bearing on your deliberations, I refer to it, briefly. We confront at

once the fact that nearly all of these electric companies do business only in a single State and do not enter the channels of interstate commerce at all; and it may well be doubted whether the powers of the Congress as to wages and hours extend to purely intrastate concerns. That is a great question of constitutional law which may some day be settled; but we are not here to settle questions of constitutional law.

The Recovery program must be based on cooperation, not litigation; and this Industry has thus far raised no questions of constitutional law, but has tried voluntarily and diligently to cooperate in the program for recovery. If the Act means what it says and if the declared policy of the Congress can be made effective in the proposed Code, the interests of our customers, employees, and investors will be best served by our continued cooperation. We have come here for that purpose.

The Declared Policy of the Recovery Act Should Be Applied to This Industry

This Industry has increased substantially its payroll costs and is expected to increase them further. The published statements of operating results covering the period since last August are beginning to show those increased costs very clearly.

The increases in volume of sales, expected by some last summer and early in the fall, have not been realized; the increased payroll costs remain and mount higher. How is that situation to be met under the policy of the Recovery Act? Are the prices to be charged the public to be increased in the face of the demands of some State Commissions for rate reductions despite the increased costs and contrary to the desire of the Industry to lower rates wherever possible rather than increase them? Or are the resources for increased payroll costs to be provided now through assurance of the elimination of unfair competition and through the other means declared in Title I of the Recovery Act?

First we face the fact that in this public utility Industry the rates charged to the public cannot be increased at will to reflect increased operating costs, as has been done in other industries; and the companies would not wish to increase them generally if they could, save under the most urgent and inescapable of emergencies, compelled by large increases in the costs of operating materials and labor. The rates and revenues of these companies are closely regulated and limited by State laws and by State regulatory Commissions; and it must be frankly recognized that the regulatory situation makes unavailable to this Industry an exercise of the price-raising powers possessed and exercised by other industries which have increased their payroll costs under the mandate of Codes.

It is inherent, then, in the situation, that if this Industry is asked to submit itself to a Code under the Recovery Act and thereby to perpetuate increased payroll costs, the first effort must be to see to what extent, under the powers vested by the Act and the Code, these increased costs may be compensated for and offset by eliminating or reducing the unfair competitive practices with which this Industry is now beset, and which jeopardizes its ability to comply with proposed provisions as to wages and hours. A Code which did not frankly face and deal with this situation would place this Industry in an unjust and impossible plight. With the State Commissions barring rate increases and even pressing for rate reductions, and with all agencies of government imposing heavy increases in tax burdens, this Industry could not fairly or justly be expected to submit to increased payroll costs at the instance of the Federal Government under the authority of the Recovery Act, unless the declared policy of Title I of the Act is assuredly to be made effective in order to maintain the economic resources of this Industry. Fair play requires it; the declared policy of the Act presupposes it; the logic of present and recent events makes it essential.

What the Recovery Act Provides Shall Be Done to Further Fair Competition and to Enable Increases in Employment

When we turn to Title I of the Recovery Act and examine the declaration therein made as to the policy of the Congress, we find a pronouncement which fairly fits the situation confronting this Industry. As expressed in the Act itself, the policy and purposes to be achieved through its administration are:

(1) "To provide for the general welfare by promoting the organization of Industry for the purposes of cooperative action among trade groups;
(2) "To induce and maintain united action of labor and management under adequate governmental sanctions and supervision;
(3) "To eliminate unfair competitive practices;
(4) "To promote the fullest possible utilization of the present productive capacity of industries;
(5) "To relieve and reduce unemployment" and "to improve standards of labor"; and
(6) "Otherwise to rehabilitate industry and to conserve natural resources."

This Industry is Ready to Proceed With Such a Program

If the declaration contained in the Act can be made effective according to its plain language, the electric industry can be placed in position to do its full part in the nation-wide program.

For one, I believe that irrespective of the present legal question as to the applicability of Title I of the Act to public utilities regulated by the States in which they operate, the members of the Industry will evidence, through submission of a Code, their willingness to cooperate in good faith to effectuate what has been referred to as "a nation-wide program to raise wages, create employment, and thus increase purchasing power and restore business, through the standards of fair competition authorized by the Act."

The members of the Industry point out that their gross and net earnings, and hence their resources available for continued compliance with a Code, are, unlike the situation in general industry, closely regulated and limited through rates and charges subjected to State regulatory control, and that, in other respects vitally affecting the purposes of the Act, the competitors of members of the Industry are subjected to no like regulatory control and to no regulatory control over their competitive and trade practices. The result is that in many matters closely related to the purposes of the Act, the members of the Industry and services in competition with them are now subjected to no means or manner of regulation and supervision in the public interest along lines specified in the Act, unless such a means of cooperative redress of abuses is established pursuant to a Code under the Recovery Act, as authorized by its terms. Many of the purposes and policies of the Act, as to matters not within regulatory powers and jurisdictions under existing law, could be effectually furthered, through publicity, restraint and discipline, within and by the Industry itself, as authorized by the Recovery Act. Abuses within the Industry are not typical and are not supported by the opinion of the Industry; the opportunity for corrective measures is welcomed.

The Requirements of Fair Play

We submit, as a matter of fair play, that if the private electric companies of this country are to be subjected by

the Federal Government to a Code imposing increased payroll and operating costs through minimum wages and maximum hours, everyone else in the electric business should be subject to the same Code and the same requirements, whether a municipal or other public plant. There are more than 1800 municipal electric plants in the United States today. The Government could not fairly ask us to burden our costs with the expenses of compliance with a Code, and then leave our competitors free from that Code and those costs, particularly when Government itself is or aids our competitors.

Furthermore, one of the declared purposes of the Act is "to eliminate unfair competitive practices" and "to promote the fullest possible utilization of the present productive capacity of industries," as well as "to rehabilitate industry" and "to conserve natural resources." Various of the Codes approved for other industries have provided, in effect, that this should be done and that no additional and competing plants or facilities should be built or installed until the productive capacities of existing plants and facilities have been fairly utilized (taking into account reasonable reserves), to the end that duplication and waste and increased burdens in carrying charges and operating costs shall not avoidably be placed upon the public. We submit that any Code now established ought fairly to recognize and require that this Industry shall be accorded and assured fair and non-discriminatory treatment in this respect, as compared with other industries under the Act, and that the installation of additional production and transmission capacity and facilities shall be similarly restricted, as has been done through the Codes for other industries, until the existing capacities and facilities have been fully utilized.

Should the Government Itself Disregard Its Own Standards of Fair Competition?

The elimination of unfair competition and the prohibition of increase in plant capacity until existing capacities are fully utilized, have become basic and familiar provisions in the Codes for other industries. Such provisions are of the essence of the declared policy of the Act.

In all fairness, we then submit these questions: In imposing a Code and increased costs upon any industry, may the Government itself reserve the right to violate its own standards of fair competition? May the Government itself fairly continue to do, as a competitor, what it would permit no private concern in an industry to do? May even the moneys which the Government takes from this Industry and other taxpayers, be used by the Government in violating, or financing others to violate, the standards of fair competition declared in the Recovery Act? May the Government with one hand impose a Code and increased costs on an industry, and with the other destroy the possibility of compliance, through entering the field itself as a competitor conforming to no standards of fair rivalry and backed with all the resources of the taxing power?

These are fair questions which deserve fair answers. They merit the careful consideration of all thinking people. If such a thing can be done today to any industry, it can be done tomorrow or next year to any other. The answers to these questions may be found in the Code to be filed soon in Washington. The issue should be squarely faced.

Shall There Be No Blue Eagle for the Government as a Competitor?

The Federal Government should either conform its own activities and use of Federal funds to the declared policy that is fundamental in the Recovery Act, or it should refrain from imposing any Code whatever upon an Industry as to which the Government proposes itself, as a competitor with the Industry, to disregard the standards of fair competition. The Government cannot fairly impose on private companies a set of severe and costly requirements with which the Government does not itself propose to comply, in proceeding to inflict upon the Industry a ruinous competition conducted or aided by the Government itself.

We submit that it is no more than fair and in accord with the declared purposes of the Act that if a Code of Fair Competition is now imposed on the electric Industry, no department or agency shall thereafter install additional electric generating capacity or transmission or distribution facilities in any Federal Project or shall advance Federal funds to others for the construction or installation of any such additional capacity or facilities which would or might be operated in competition with existing capacity or facilities of members of this Industry, unless and until it shall have been determined and certified after hearing, by the State board or officers having jurisdiction (or by the Administrator, if no State board or officers have jurisdiction), that public necessity and convenience exists therefor, by reason of the inadequacy and insufficiency of the existing service, capacity or facilities.

Fair Play is an American Tradition

We invoke in these respects the common sense of the situation, and the American tradition and ideal of fair play. The powers of the National Recovery Act should be used to build up and not to tear down. Equality of competitive treatment and the elimination of unfair trade practices is the basic concept of the Recovery Act. Every plant and concern in the electric business should be subjected to the Code requirements as to wages, hours, and the like, or none should be. The Federal Government should not repudiate or shun its own Blue Eagle. The Government itself should not be unfair as a competitor, and should not itself do what it would not permit private capital to do. Particularly is this so, if the Government is at the same time to ask these companies to submit to drastic requirements as to wages and hours. I hope that the Code Committee will insist upon the remedial provisions which it has wisely drafted on this subject.

Two Other Phases of Fair Trade Practice

I comment upon two other matters, which merit your consideration:

1. Many members of this Industry engage in the retail sale of appliances designed for the economical and efficient use of electricity. In some instances—not many of late—complaints have been made by retail stores and other merchandisers as to the methods used by some of the utilities in promoting the sale of appliances. The utilities sell appliances for promotional reasons, to develop or maintain diversity and volume of sales and favorable load factors, which tend to lower unit costs and thereby to lower rates. The retail store sells appliances for the same reason as it sells any other merchandise. Utilities do not ordinarily sell appliances for the sake of selling appliances and making a profit thereon, but as one of the integral functions of rendering our service to the public. Often the appliances sold by the utilities are at a pioneering stage and of a kind and cost which local stores could not finance and carry.

Nevertheless, by the same token which leads the members of the electric Industry to ask for the observance of fair competitive practices by others including the Government, we offer it to our competitors in the sale of appliances. We will conform our appliance sales to the stand-

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FAIR COMPETITION WITHIN THE ELECTRIC INDUSTRY

By W. C. MULLENDORE

Executive Vice-President, Southern California Edison Co., Ltd.

An address delivered at the General Conference of the Electric Light and Power Industry to Consider and Discuss the Provisions of a Code for the Industry, St. Louis, Mo., December 5, 1933.

The underlying aim and purpose of the National Recovery Act is to advance the public interest and promote the common welfare of the people of the United States. The extent to which the electric utilities are connected with the daily life of the people and with the various steps in the economic process of the United States is in part disclosed by the fact that in the year 1932 out of a total population of approximately 123,000,000, eighty-nine million were served by this industry. Almost twenty million households are dependent upon this industry not only for lighting but for the performance of innumerable tasks within the households; most of our factories use electric energy for motive power as well as for lighting; our streets and highways are lighted and our street railways are operated by electric energy; radio broadcasting, as well as receiving sets, are dependent upon this service; most of our stores, hotels and commercial establishments, both small and large, are likewise dependent upon electric energy for lighting and much of their operation; and finally, great farm areas, on which live 3,000,000 people, particularly in those areas where electric energy is used for pumping water for irrigation, are dependent upon the service of this industry.

Another characteristic of this industry is that it is subject to severe competition in much of the service which it renders. Although electric service is commonly considered a monopoly service, it is far from a monopoly in fact. Not only does electric energy compete with other fuels and other sources of power, such as steam and gas power, but it must compete with those customers who are in a position to install their own generating plants and thus serve themselves with electricity. Factories, refineries, hotels and office buildings, particularly those having waste heat, electric railways and other large consumers can furnish themselves with electric energy for their own use and only refrain from doing so by reason of the more attractive rates and better service of the utility company. The differential between the cost of buying their electricity and making it themselves is, however, often so small that discriminatory tax and other burdens placed upon the utilities threaten to cause important customers to resort to other sources of power supply.

Furthermore, the electric utility must compete in every home and with every customer for a share of the consumer's dollar and the expansion of the sales of electric energy to these customers is dependent upon the utility's ability to reduce its service charges, and thus to attract the share of the consumer's dollar which it must secure to maintain and improve its service. The importance of these competitive conditions faced by the utilities lies in the fact that the majority of small household and other small consumers are not able to supply their own electric service, and the imposition of unfair competitive conditions upon utility companies which would cause the loss of the larger consumers would inevitably react to the disadvantage of the majority of small consumers who now enjoy lower rates by reason of the diversity of load and demand furnished by the larger consumers.

Because of these facts, and because fixed and long term investments are required in power-houses, in transmission lines, in distribution lines, in transformers, and other durable equipment, which restrict the area of operations and confine the freedom of movement of the utilities, the protection of the existing business of the utilities and the affording of fair opportunities for their expansion, are matters of deep concern to the communities which they serve.

I challenge your attention to those facts because from them there follows inevitably the conclusion that whatever militates against the fullest possible development of that industry, whatever tends to prevent the fullest possible economic development of this servant of all industries, is inimical to the public welfare and against the public interest.

In the passage of the National Recovery Act, Congress has recognized, and the common-sense of mankind has long recognized, that unfair competitive practices in any and all industries are opposed to the public interest and militate against the general welfare, because unfair competitive practices give advantages to certain sections and groups of our population which are not enjoyed by others, and thus are created obstacles to the fullest possible development of our economic life. If it is true that unfair competitive practices in the smaller industries and groups which serve only fractions of our population militate against the public interest, how much more is it true that such practices should so far as possible be eliminated from an industry which embraces the entire population and affects the manifold daily activities of our people as does the electric utility industry.

Therefore, in proposing the inclusion in the code for this industry of certain provisions having as their objective the elimination of unfair competition, I desire to present them in the light of their bearing upon the public interest and welfare, and to ask that the first test which shall be applied to these proposals is whether or not they advance the public interest and promote the common welfare.

I propose to point out competition within our industry which is unfair because it extends benefits and advantages to certain groups which are denied to others who are similarly situated; because it imposes burdens upon customers of some utilities which are withheld from others who are in all justice entitled to the same treatment because, in short, it sets up certain artificial discriminations between various groups of our population who would, but for such artificial discriminations, receive their electric service upon equal terms.

In the administration of the National Recovery Act and in the codes which have been adopted and approved, certain practices have been prohibited as unfair. Among these are selling below cost, the giving of secret rebates, commercial bribery, the giving of prizes, premiums or gifts, defamation of competitors, interference with contractual relations, and misrepresentation or false or misleading advertising. It will be noted that common to all these prohibited and indicated practices is the deceit of, and

discrimination against, the customers themselves either through pretending to give something for nothing or through misrepresentation of the cost of the article or service sold.

Why should the public be interested in the elimination of these practices? How is the public injured by a continuation of such activities? Why, obviously because there can be no advantage given to one without a corresponding disadvantage to another. If a secret rebate is given to one customer, it is unfair to the customer similarly situated not to receive the same rebate, and an unfair advantage of the one over the other is thus created. Selling below cost to one customer necessitates making up the loss from another to his consequent disadvantage, and it gives to the customer receiving goods below cost an advantage over other citizens who must pay the full value received. All of these practices result in inequalities and maladjustments which tend to obstruct the free flow of exchange of goods and services upon which economic society is dependent for its healthy continuance.

Now, turning to the electric utility industry, I challenge your attention to those governmentally financed units within the industry which under present conditions operate free from taxes, which are financed by the use of tax-free bonds issued against the public credit instead of being confined, as the privately financed utility is, to the credit of the utility enterprise itself; which charge a portion of their rent and of the services of those whom they employ against other services than that of the utility itself.

The privately-financed utility pays on the average 17 cents out of every gross dollar collected for taxes; most government utilities pay no taxes or entirely disproportionate amounts. The privately-owned utilities are regulated by public agencies and under such regulations they are compelled not only to operate under restrictions from which their government competitors are free, but they are compelled to bear great burdens of expense incident to such public regulation from which their competitors are freed.

As I have said, these governmentally financed units are allowed the use of the public credit, which means that they pledge the property of the entire Nation, or an entire community, including the property of those whom they do not serve. In addition their bonds are usually tax-exempt. By reason of this community credit base and tax-exemption, privileges which are denied the privately-financed units, those citizens who are thus discriminated against are compelled to furnish part of the cost of a service from which they derive no benefit but which is to the advantage of others who have no greater right, under all principles of justice, than themselves. One of the most glaring examples of the use not only of the public credit, but the use of the powers of taxation to compel the support of these governmental enterprises in the utility industry is to be found in the Public Works Section of the National Recovery Act itself, wherein a tax is imposed on the capital stock, the dividends and profits of the privately financed utilities, as well as other corporations, in order to finance the loans and gifts made by the PWA. Millions of dollars thus derived from the private utilities are made available for the financing of competing units within the industry, some of which are municipalities to which an outright donation or gift of 30 per cent of the capital necessary for competition with private utilities is made. In other words, here is a concrete example of a direct exaction through taxation from the capital and income of private utilities for the direct benefit of competitors who are to be set up for operation upon a much more favorable basis than is permitted to those who have furnished the money for their operation.

The vast majority of the public is served by the private utilities. Of the total of 89,000,000 people in the United States who are served by the electric industry, not more than 8,000,000 or less than ten per cent are served by the governmentally - financed enterprises. Hence this small minority of the total population is receiving these special benefits resulting from the perversion of the powers of government in the operation of unregulated, untaxed, and otherwise favored utilities financed by public credit; and this small minority is receiving these benefits at the expense and to the disadvantage of the vast majority.

The vast majority of the public is served by these private utilities, and only a comparatively few communities, towns and cities, located in various sections of the United States, are the beneficiaries of these special benefits resulting from their perversion of the powers of government in the operation of unregulated, untaxed, and otherwise favored utilities financed by public credit. The private utilities are prohibited, under the regulatory laws which govern their operation, from granting preferential rates to one community served by them as against other communities similarly situated and naturally and fairly entitled to the same rates and service. Why does a sound public policy demand the prohibition of secret rebates, or other preferential advantages, to one group of consumers as against another? Obviously, because the setting up of such artificial advantages, unjustified by peculiar conditions of service or natural advantages, would tend to advance the growth and development of one business or one community as against its neighbor. The very basis of governmental regulation of the transport services, the communication industries, and of other public utilities has been the recognition that these discriminations, if permitted and practised by services upon which the public is dependent, might well result in the destruction of the business or community against which the discrimination was practised. And we are now faced with the fact that the government itself is not only permitting but is encouraging the very discriminations which it is the established policy of government to prohibit and prevent.

Neither are the vice and peril of these discriminations limited to their effect upon the customers served by the private utilities. Through sacrifice and self-denial in years past millions of our citizens laid aside something from their current earnings for the physical improvements of their communities through private investments, savings investments which they made in the faith that property rights, upon which their human rights are dependent, were guaranteed protection against government confiscation, by the basic laws of their land.

It is the money of the citizens of the United States, their life-savings from their industry, which has furnished the power-houses, the distribution lines and other physical equipment of its public utilities, just as surely as it is the money of those citizens which has built our postoffices, our highways, our schools and other public-service institutions. Hence the public is interested in the fair treatment of the so-called private, but in fact public, utilities of this country both as customers and as owners, and the public welfare and public interest requires and demands fair treatment and the elimination of unfair competition against these utilities for the same reasons that it demands the same treatment for all citizens.

I do not, however, rest the case for fair competitive practices within this in-

dustry upon these obvious facts alone. I call to the witness-stand in behalf of the fair competition for which I contend the official of one of the principal governmentally-operated utilities going forward in this country today. I refer to the Tennessee Valley Authority and to David E. Lilienthal, general counsel and a director of that Authority. Speaking before the Rotary Club of Memphis, Tennessee, on Oct. 17, 1933, he laid down certain tests for the fairness of rates from a governmentally-operated power system and outlined the means of determining the costs of such operation. Amongst other things he said:

"First of all, we kept in mind that the consumers of Muscle Shoals power must pay all the costs. In short, the power program of the Authority is not to be subsidized by the taxpayer. And in the second place, to carry out the President's plan for a 'yardstick' all costs of a comparable privately-owned company were considered, as accurately as possible. This included direct operating expenses and administrative overheads, interest, depreciation and taxes.* *

"The item of taxes in public power operations has been the subject of confusion and misinformation and I would like to discuss it for a moment. The principle, as I see it, can be worded in this way: A public power system should bear the burden of taxes which it would pay if it were privately-owned. A public power system should contribute its share of taxes to the general fund.* *

"Suffice it to say that a careful effort was made to consider all items of expense of comparable private operations and to treat the entire project as a self-supporting project and not as a taxpayer's subsidy."

Now in those statements by Mr. Lilienthal, we have an outright recognition of the fact that in order to make a fair comparison of rates between utilities financed by the government and utilities financed by the citizens, the government utility, and the customers of such government utility, must be charged with all items of expense of comparable private operations. In such statement we have the measure of fair competition between these two groups of utilities. And if that is fair, as all will agree that it is, then that should be written into the code of this industry in order to assure fair competition within the industry.

Before I leave Mr. Lilienthal's address, allow me to call attention to another point which he made which fairly illustrates another aspect of this subject of fair competition. In speaking of the operations of the Tennessee Valley Authority, he also said:

"What the Authority is required to do in its power program is to set up an area for power operations which will be on a comparable basis with typical private operations. To set up such a 'yardstick' the Authority obviously must undertake to serve an area which is large enough and sufficiently concentrated, with enough population density and with a sufficiently diversified industrial, commercial and residential load to provide a fair test. As business men, it is apparent to you that if the Authority is only to serve the parts of a territory which a private utility has not chosen to serve, or is to serve only sparsely populated areas, the result of our operations cannot possibly be set up as a measuring rod. The Authority will necessarily have to undertake to serve a balanced area of concentrated industrial activity, including some cities of substantial size, good farms and reasonably favorable distribution possibilities."

Mr. Lilienthal has thus directed attention to one of the most important aspects of unfair competition because it has been the endeavor and tendency of governmental subdivisions to cut off from the territory served by private utilities the larger cities and more densely populated areas, and to leave to the service of the private utilities only those more sparsely settled sections which the government utilities do not find so attractive for operation. They would thus deprive their neighbors served by the private utilities, that section of the public outside of the cities, of the better-balanced load, the increased diversity and the increased earnings which would redound to the benefit of all the customers but for the separation of the cities from the system. They thus seek an advantage for a particular group of citizens—an advantage which comes not at all from more efficient operation, but from the unfair privileges which under the system of government competition, as it generally exists today, are made available to one group of customers over another.

Carried to the extreme this unfair competition would result in severing from the private utility systems all of the best-balanced business, and thus leave to the private utilities only the rural and small town load. There would thus be set up in whole, as there is today in part in some localities, a wholly unfair discrimination between urban citizens and their rural neighbors, notwithstanding the fact that upon the well-being of the rural communities much of the prosperity of the city depends.

Confiscation Through Governmentally-Financed Duplication

May I now direct your particular attention to the waste of public funds and the confiscation of the property of citizens involved in the many current programs for the use of public funds, obtained through taxation and the pledging of the public credit, in the construction of duplicate electric facilities in communities already adequately supplied with such facilities. Not only are we adequately supplied but it is safe to say that there is no community in the United States today with an established electric service which does not have a considerable excess capacity over existing demand, ranging from 25 per cent to 100 per cent. Yet, in the face of this situation, the Federal Government is today proceeding with the construction of huge power projects in those areas of the country which are already over-supplied; and the Government is further loaning and giving, and offering to loan and give, large sums of money to municipalities for duplication of and addition to existing privately-owned utility properties.

Upon the question of surplus supply, I wish to again quote Mr. Lilienthal, who said in his speech in Atlanta, Georgia, on Nov. 10 last:

"Looking at the country as a whole, without respect to public operation or private operation, it is perfectly evident that we now have and soon will have a tremendous surplus supply of electricity. Within the area of the Tennessee Valley, for example, privately owned electric companies have generating and transmission facilities which can care for between 30 per cent and 40 per cent more demands for electricity than is now required, even allowing for reasonable spare capacity. A fair estimate is that 25 per cent of the investment in power houses and transmission lines is idle, and is piling up fixed charges, because the customers of these companies are still tied to a low average use of electricity. The Tennessee Valley Authority has a hydro-electric plant at Muscle Shoals with a rated installed capacity of 250,000 hp. But that is only the beginning of the story. The Authority is constructing a dam and power house at Cove Creek, and another dam and power house above Muscle Shoals at what is known as the 'Joe Wheeler' dam, which together will increase the capacity of Wilson Dam to at least 600,000 hp. Out in Colorado, Boulder Dam is rapidly being carried toward completion at a total cost of $165,000,000. Boulder Dam on completion in 1937 will add to the nation's annual supply of electrical energy 4,330,000,000 kwhr. At Grand Coulee on the Columbia River and at Bonneville in Oregon are two giant power developments which are under way, estimated to cost another $100,000,000. The State of New York and the Dominion of Canada are making plans for a giant power development on the St. Lawrence River with an installed capacity of 2,200,000 hp."

Mr. Lilienthal might also have mentioned the Caspar-Alcova project in Wyoming, the Verde project in Arizona, the Pecos project in Texas and others which will further add to surplus power capacity and which are being financed by the Federal Government. He might further have called attention to the fact that the Federal Government has advanced Federal funds, part of them as outright gifts, to municipalities and other sections of the country, for the establishment of additional duplicating power facilties.

Now, unless some hitherto undiscovered economic law, which runs counter

to all human experience, is to be brought into play to meet the situation thus created, the addition of further huge surplus capacity to an already large surplus can only mean an increased burden upon the customers served, the confiscation of a large part of the investment already made and the wasteful expenditure of Government funds devoted to these projects. True, it is suggested that the lowering of rates will assist in the absorption of this surplus energy, but it is not explained how the increase of capital investment and the splitting up and division of territory served will assist in the economic lowering of rates. It is certainly true that the lowering of rates can be forced through destructive competition, but again, unless experience is a false teacher, the confiscation of capital through destructive competition in the end reacts unfavorably upon the consumer who must sooner or later pay for the losses suffered in serving him. Capital can be destroyed through unfair competition, but private capital once having experienced such confiscatory treatment by Government can not soon again be induced to invest in such enterprise.

If the duplication of existing idle investment is indeed the proper method of solving the problem of surplus capacity, why should it not be applied in the field of steel production, where there is now a 75 per cent excess capacity; in the fields of oil production, of groceries and foodstuffs; railroads, shoe factories and automobile plants in order to reduce the surplus existing capacity in those fields of private enterprise? Certainly no one has pointed out characteristics in the electric field which distinguish it in the applicability of this novel remedy from the same remedy elsewhere applied.

Again, if it be true that it is against the public interest to sell below cost in the dairy industry, which supplies a prime necessity in the food supply; if the public welfare is endangered by unfair competition which eliminates existing units in the cleaning and dyeing trade, or in the motion-picture industry, why is not the same true in the electric utility industry?

The potential power supply of the United States is for all practical purposes unlimited. It is not limited by undeveloped water-power; it is as great as our fuel supply. Nothing but economic loss can result from the overdevelopment beyond reasonably anticipated needs of this potential supply. The road to lower rates and increased use of electricity lies through the efficient use under fair competition of the facilities which we now have through the addition to those facilities only as the capital invested in them can be usefully employed; and not through the burdening of the industry with additional tax and capital charges, which can only add to the real cost of its service.

Therefore, in requesting that a Code of Fair Competition for this industry should recognize the obvious fact that wasteful and unnecessary additions to existing facilities can only result in injury to the public interest, we are asking only that this great basic industry should receive the same treatment which is accorded to other industries and businesses in which the citizens and taxpayers have a substantial interest.

To certain sections or units within the electric light and power industry the powers and privileges belonging only to government are extended while the same powers and privileges are withheld from others who are performing that same service and are otherwise in all respects similarly situated. To governmentally-owned units within the industry the government has said and is now saying: You shall be exempt from the burdens of taxation; you shall have the free use of the public credit; you shall be exempt from regulation by either state or municipal or national governmental authorities; you shall be permitted to use the police powers of government for the advancement of your business; and the influence and prestige of high government offices shall be exercised in commendation and praise of your activities and your efforts. To the other units within the industry the government has said: You shall bear your full share and more than your full share of the burdens of government, but certain of the benefits of government shall be denied to you; you shall be regulated by governmental authority and you must pay the expense of that regulation; you shall be looked upon with suspicion and distrust and the prestige and influence of high public office shall be used in condemnation of your efforts and in arousing suspicion among your fellow-men of your activities. Your facilities shall be duplicated, and your investments confiscated by the competition of those units which have the favor and wield the powers of government. To those who deny that this is the policy or the intention of government we reply that we ask only a fair examination of the facts by impartial judges. We can judge not by expressed fair intentions but by the obvious and inevitable results of existing methods and policies.

It is said that there have been abuses in the power business as conducted by private industry, and that some citizens have lost their savings invested in this business. Those charges are partially true, and we neither excuse nor condone those losses where they have occurred through wrongdoing. But these charges are only partially true and they occurred in exceptional cases. Shall the entire industry be condemned because of the mistakes of the few? Certainly it is a new theory of government and of justice which advocates the willful destruction of savings soundly and wisely invested in an industry as a means of atonement for the loss of savings not so invested; which advocates the destruction of the many for the sins of a few. Citizens have lost their money in buying land, in farming, in dealing in food products, in building hotels, office-buildings and homes, in the oil business, the amusement business, and every other line of business. But we do not hear it advocated that the government should through unfair competition in those industries proceed to destroy the remaining capital invested therein.

In asking that a code of fair competition shall be established for the electric utility industry which shall apply to all units of that industry alike, whether those units are financed by public or by private funds, we make the proposal not alone on behalf of those whose invested savings have made the industry possible, but we make it first and foremost on behalf of the citizens who are served by these companies. We stand upon the simple proposition that it is contrary to public policy, contrary to the plain statement of policy of the National Recovery Act, and contrary to all the dictates of justice and fair dealing that the great majority of citizens shall be penalized and discriminated against by the imposition of costs and of burdens from which other citizens similarly situated are relieved. I do not attack public ownership as such; I would not demand that those citizens of the United States who prefer to have their electric service provided through governmental agencies shall be denied that privilege. But in the name of those whom we serve we do ask that when governmental agencies engage in business activities for profit to the advantage of minor groups of citizens that those governmental agencies shall observe the same rules of fair play as are demanded and expected of other groups

of citizens engaged in the same lines of business. To deny the justice of this request is to deny equality of right and of opportunity between citizens.

Finally, I again say that in demanding the elimination of unfair competition, we ask that the test of our proposal shall be the public interest and welfare.

We represent in our activities, and we are charged with the duty of protecting the interests of, those who are our customers and those whose savings have builded the properties which we manage. In presenting to the duly constituted authorities administering the National Recovery Act a code of fair competition, we represent twenty-two million customers, at least eighteen million of whom are homes receiving their electric service through our companies. Furthermore, we represent the owners of these properties, not a wealthy few, but two million plain citizens of America, the honest, law-abiding, thrifty people from one end of the country to the other —men and women who through the years have denied themselves of comforts and of pleasures which they might otherwise have enjoyed in order that there might be builded for the service of themselves and their fellow-citizens, the public served by these private utilities, the finest, the most efficient, and serviceable electrical equipment today to be found on the face of the globe.

These two million owners, who from their everyday earnings have saved and denied themselves in order to furnish the property operated under private management, are today asking of the government which they support that it shall discontinue practices which result in the setting up of unfair advantages for one group of citizens over others, which result in the gift of money, exacted through the powers of taxation from themselves as citizens, to special interests with which to set up competitive enterprises under such unfair advantages of cost and of operation as tend to confiscate the savings which these citizens and taxpayers have previously voluntarily devoted to serving the same purposes.

All who believe in the square deal, all who believe in the fair treatment of the plain citizen who has played the game fairly according to the rules, all who decry the sacrifice and destruction of the savings of the people, all who deplore the destruction of faith and the discouragement of the homely virtues which have builded America and made it great, will join in this plea for fair and honest treatment.

THE INDUSTRY'S PART IN NATIONAL RECOVERY

(Continued from page 266)

ards of fair trade practices provided in the Retail Code, by which other vendors of appliances are governed; we will authorize full cooperation and joint action between the Electric Code Authority and the National Retail Trade Council; and we will leave it to those two bodies to work out and adjust any difficulties or complaints that may arise on either side. That seems altogether fair to those stores and dealers who sell appliances.

2. Fair trade practice requires sound and reliable accounting according to recognized standards, and requires that the accounts be audited and certified periodically by independent accountants. Certain abuses for which the Industry generally has been criticized could have been averted if such a practice had been followed. Reasonable requirements in this respect ought to be made a condition of any proposed Code, and should be impartially enforced against all members of the Industry, whether privately or publicly owned, to ensure that statistical statements and reports will be dependable and on a comparative basis. The Industry should stand resolutely for the observance of the highest accounting standards, on the part of all who are to be subjected to the proposed Code.

Code Requirements as to Wages and Hours

I refer briefly to another of the vital subjects which are affected by the Recovery Act and any proposed Code. The Industry is asked to accept limitations on the hours of work by its employees, and standards of minimum wages.

Unlike other industries which are seasonal or occasional in affording employment, the operating employees of this Industry enjoy practically continuous employment throughout the year. That is a fact whose significance is fundamental. The fact of vital concern to an employee is not his hourly wage or even his weekly wage, but the total of his year's compensation. By that standard of continuous employment and total yearly wage per employee, this Industry is proud to rank with the highest in American industry, according to the official figures which are familiar to most of you. This condition transcends in significance any standards of hourly and weekly rates of pay, and is fully warranted by the ability, intelligence and loyalty of the great body of our employees, on whom the American public intimately depends for an essential service.

Probably no labor forces in a major industry in America showed so small a percentage of decline in volume of employment from 1926 to the years 1931 or 1932 as did the operating employees of the electric industry. The decrease in employment during those years was due largely to the enforced cessation of construction work, and that condition persists today.

This leads me to point out that those who seek sincerely a substantial increase in employments within this Industry might well concern themselves with a restoration of the conditions which would permit resumption of construction. Construction payrolls are those which could readily show the largest expansion, in number of employees and total wages paid. Destruction of the credit of members of this Industry, paralysis of their ability to finance additions and extensions, halted our normal growth and cancelled our construction programs. Restore the conditions of normal growth, end the menace of unjust attacks and still more unjust competition by the Government itself, and these utilities will put men back to useful work without adding to the public debt, and prosperity will come again to many homes.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933

Of EDISON ELECTRIC INSTITUTE BULLETIN, published monthly at Philadelphia, Pa., for October 1, 1933.

State of New York,
County of New York.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Wilgar Coleman, who, having been duly sworn according to law, deposes and says that he is the Editor of the EDISON ELECTRIC INSTITUTE BULLETIN, and that the following is to the best of his knowledge and belief, a true statement of the ownership, management . . . etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations . . . to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are: Publisher, EDISON ELECTRIC INSTITUTE, 420 Lexington Avenue, New York City; Editor, Wilgar Coleman, 420 Lexington Avenue, New York City; Managing Editor, none; Business Manager, none.

2. That the owners are: EDISON ELECTRIC INSTITUTE, 420 Lexington Avenue, New York City, a mutual organization, not incorporated. George B. Cortelyou, President, New York, N. Y.; Edward Reynolds, Jr., Treasurer, New York, N. Y.; Bernard F. Weadock, Vice-President and Managing Director, New York, N. Y.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

WILGAR COLEMAN,
Editor.

Sworn to and subscribed before me this 14th day of October, 1933.
(Seal) ROSEMARY R. WALSH,
Notary Public, N. Y. County.
(My commission expires March 30, 1934.)

THE UTILITIES PROBLEM

By A. W. CONOVER

Vice-president and General Manager, Oklahoma Utilities Company, Barstow, Okla.

An address delivered at the General Conference of the Electric Light and Power Industry to Consider and Discuss the Provisions of a Code for the Industry, St. Louis, Mo., Dec. 5, 1933

It is my understanding that I am to discuss the problems of the smaller utilities insofar as the application of the NRA Code for the electric light and power industry effects their operations.

Most of us signed the President's Agreement the 1st of August and placed into effect on our properties the substitution of the President's Re-employment Plan presented by the Edison Electric Institute, and we believe that it is entirely possible to operate under this code provided certain additions are made in the permanent plan which will incorporate articles of fair competition and further to effect certain agreements from the federal administration in exchange for that which they have demanded of our industry. Naturally it is our idea to cooperate; however, we want to be treated fairly, and our thoughts and suggestions should be given consideration because as we see it government and industry must work hand in hand if this new venture is to be successful.

Every industry code with the exception of the public utilities insures member industries the right to live. Since it is apparent that publc utilities are denied this protection, and wages in our industry are higher than the average of other industries, most certainly we should oppose any further liberalization of Article III of the Code and advocate abolition of existing provision of Section "B" of that article which provides for a reduction of forty-eight hour weeks to forty hour weeks by March 1, because we have no means of offsetting this added expense and our results in recent months indicate combined costs of recovery compliance prohibit greater expense burdens on smaller utilities. We have made numerous inquiries in several small communities throughout our state and find that practically every merchant is working his employees on a forty-eight hour week basis. Certainly we should be granted a similar concession when the conditions as previously outlined are taken into consideration. In some instances it is practically impossible to change present methods of operation to comply with the letter of the Code. For example, where a utility furnishes a house and all utility service to a sub-station operator and the sub-station in question is located adjacent to a small community the problem is most difficult, and the expense involved of having four shifts with the added burden of building three additional houses to house the operators is obviously more than the traffic will bear in practically every case of this kind. Of course, you are conversant with problems similar to this as well as other border-line cases and these naturally will have to be given consideration, otherwise, it will be necessary for utilities to consider the installation of automatic equipment which certainly will not assist in re-employment but will tend to retard its progress.

In all fairness to our industry our code should incorporate provisions of fair practice similar to Article XI* under fair competition in the Ice Industry code which requires a certificate of convenience and necessity. At least we should be protected to the extent of prohibiting competition where existing facilities are adequate and rates are reasonable.

All other industry codes provide for restoration of price levels. Utilities have consistently reduced rates especially during the Depression. . . the utilities should . . . get commitment from the administration discontinuing the policy of loaning PWA funds for construction of duplicate facilities and resultant competition where facilities are adequate and ample and rates reasonable. Also relief should be afforded from demands for further reduction in rates where existing revenues and earnings do not justify such reductions. All of us are conversant with the argument supporting this contention. Most pertinent in my opinion is the fact that continued persecution defeats the fundamental purpose of recovery administration and the strangling of public utilities will further postpone recovery in capital goods industry without which no stabilized recovery can be achieved. Utilities expended an average of seven hundred and fifty millions of dollars a year during the preceding five years, and each fifteen hundred dollars provided one man-year work. Obviously utilities cannot resume capital expenditure even in a modified manner if earnings and credit are further impaired.

I believe that I express the opinion of every small utility operator when I say that we should advocate a strongly militant and aggressive policy on the part of utilities and organized industry to combat present anti-utility sentiment which threatens complete impairment if not destruction of industry. We have become alarmed with the attitude of silence manifested by our leaders in the Institute, and we vigorously oppose continuation of this policy of aloof silence which is contrary not only to the sentiment of a majority of utility operators in numbers but also the editorials of trade papers and impartial financial publications.

In the last issue of the *United States News,* David Lawrence outlines in his editorial the developments of the past few days and the present situation confronting the federal administration. It is interesting to note that throughout his editorial he gives through inference that we need for the government to treat us with frankness and that we should be taken into the confidence of the govern-

(Continued on page 279)

EDITOR'S NOTE: The following is "Article XI—Control of Production" from the Ice Industry Code:

"If at any time an individual, firm, corporation, or partnership, or other form of enterprise, desires to establish additional ice production, storage, or tonnage in any given territory, said party must first establish to the satisfaction of the Administrator that public necessity and convenience require such additional ice-making capacity, storage, or production. The ice manufactured from any plant that was not in actual operation on September 8, 1933, shall not be sold to any purchaser for a period of twelve months from the date subsequent to September 8, 1933, upon which the operation of such plant may be initiated or resumed, at prices lower than the lowest corresponding prices in good faith published, as required by this Code, in a schedule or schedules governing prices to such purchasers; providing and excepting that this provision will not apply to the sale of ice manufactured by the following:

"(a) Plants installed upon authority, of a certificate of necessity and convenience duly issued by the Administrator; or

"(b) Plants temporarily shut down for repairs for a period not in excess of twelve months prior to September 8, 1933; or

"(c) Plants that were owned or whose output was controlled by companies or operations that were on September 8, 1933, in good faith engaged in the business of selling ice to the general trade in the market in which the ice from such plants is proposed to be sold, such plants being on September 8, 1933, out of operation because of the intent in good faith to further the economic conduct of the business of such company or operation."

Curtis Prize Paper

THE DEVELOPMENT OF A LIGHTING SERVICE AND ITS ACCOMPLISHMENT

For this presentation the 1933 Augustus D. Curtis Certificate was awarded to the Alabama Power Company. Cash award to Mr. J. S. Sutherland, Merchandise Sales Division, Alabama Power Company, Birmingham.

The Alabama Power Company has operated on the theory that the principal work of the lighting engineer is in developing an appreciation of the value of good illumination, and in insisting on correct wiring installations. Numerous cases of too small wire sizes, wrong type and size of fixtures, incorrect hanging and improper spacing of fixtures, encountered by the engineer in the course of his work, point to the folly of the sale of equipment rather than the sale of illumination. By avoiding the sale of equipment and insisting on the correct lighting specifications, the lighting engineer obtains the confidence of all interested parties, which results in a better job of illumination to the customer, increased business for the contractor-dealer and manufacturer, and increased revenue for the utility.

The Lighting Section was organized in 1930 with six men under the direction of the Merchandise Sales Division. After a period of training five men were assigned to territories containing 4,000 to 5,000 commercial meters each. One man was retained at headquarters to head up the activity, outline promotional and advertising programs, summarize reports and render assistance to the field men whenever necessary. The field men were put on a straight salary and placed under operating executives in the field, but were expected to work in close cooperation with the headquarters office.

Four additional engineers were trained and placed in the field in December, 1931, so that in 1932 there was a lighting engineer for each 2,000 commercial meters. Each field man was equipped with a Weston illuminometer and demonstration kit and the responsibility was definitely assigned him of developing an appreciation of the value of good illumination, especially among commercial and industrial customers. As no equipment was to be sold, the men acting only in the capacity of consulting engineers, their duties were to discuss the benefits of good lighting, make layouts and estimates for the prospect, and further assist him in securing competent electrical installations. All loads added to the company lines as a result of their activities were placed to their credit and a bonus plan of compensation was put into effect during 1932, whereby these engineers were given a bonus for loads added in excess of monthly quotas, which were assigned against their salaries. The commission form of compensation equalizes the cost per kilowatt added and is encouraging to the salesman who has something definite to work to beyond his allotted task.

A plan for financing the installation cost for the customer was put into effect even though the material was not purchased through the company.

To develop a lighting consciousness among commercial customers a comprehensive newspaper and direct mail plan of advertising was carried on during the year. The plan tied in with the activities of the engineers as each man was furnished with a copy of the set-ups, and, several weeks before mailing, was furnished a copy of the material to be mailed to a list supplied by him.

The schedule used is as follows:

January—Show Window Lighting.
February—Commercial Interiors.
March—Sign and Office Lighting.
April—Floodlighting.
May—Public Buildings.
June—Street Lighting.
July—Theatres.
August—Schools and Churches.
September—Industrial.
October—Show Windows.
November—Commercial Interiors.
December—Residential and Display.

One of the first floodlighted football fields in the South was sold and installed by the company at Crampton Bowl, Montgomery, in October, 1927. This installation was enlarged during 1932 and is used for both football and baseball.

Thirty illustrated lectures on "Modern Merchandising Practice," by authorities on the subject, were sponsored during 1932 by the Lighting Section in order to stimulate business and to educate the merchants in the various towns on the economic value of commercial lighting. For those merchants who were unable to attend the meetings, and for those who had requested a copy of the talks, a brief outline of the material covered was prepared and distributed. A copy of the material distributed is included as "Appendix A."

To determine the economic value of good school lighting and to educate children to appreciate proper illumination, an outstanding experiment in school lighting was conducted by one of the company's lighting engineers in the grammar school of Tuscumbia, Alabama. The results were released in 1932 and were so astounding that they were published by the Associated Press, educational journals and numerous trade publications. A report of the experiment appears as Appendix "B."

When measured by the yardstick of results the activities of the Section have shown an increase each year in spite of adverse economic conditions.

Year	*No. Jobs*	*Connected Load Added in kw*	*Kw Added per Commerc'l Meter*
1930	1,135	3,334.8	0.160
1931	2,249	4,623.4	0.217
1932	3,683	5,594.7	0.238

The 1932 business by class of lighting was as follows:

Class of Business	*No. Jobs*	*Connected Load in kw*
Sign and Outside Display	440	738.1
Show Window	182	217.6
Store Interiors	2,284	2,855.8
Schools, Public Bldgs. and Churches	157	619.5
Offices and Theatres..	202	220.8
Industrial	148	855.3
Residential	270	87.6
	3,683	5,594.7

In addition to the promotion of lighting by means of direct sales efforts, the Alabama Power Company has installed outstanding lighting systems in all of its principal offices, stores and warehouses as an example for others. One of the first and perhaps the largest floodlighting installations of a public building in the State was installed in 1929 by the com-

pany on its main office building in Birmingham. During 1931 the company purchased and installed 35 electric signs on its principal properties, and several of its substations were floodlighted as a safety measure, as well as an advertisement of its product—electric service.

Representatives of the Lighting Section have appeared on numerous employee programs with the purpose of informing their fellow workers of the advantages of good lighting. By means of campaign prizes and cash bonuses other employees are encouraged to assist the Lighting Section in selling better illumination to the public.

It is felt that the accomplishments of the Lighting Section during 1932 have been of great material benefit to the company, and that the results of the past year are decided steps in developing the field of illumination, which holds bright possibilities to the public as well as to the entire electrical industry.

APPENDIX "A"

HIGH SPOTS ON "MODERN MERCHANDISING PRACTICE"

Digest of Commercial Lecture Sponsored By Lighting Section of Alabama Power Company

In keeping with its policy of service, the Alabama Power Company has through its Lighting Section attempted to assist its commercial customers in their merchandising problems by bringing to them from time to time outstanding authorities in retail selling. These meetings have in cooperation with international manufacturers been held in a number of towns in Alabama served by the Power Company and have featured illustrated lectures by Messrs. W. T. Clark and M. E. Olson, sales promotion men and merchandising specialists of the General Electric Company, and by Mr. W. F. Nelson of the Westinghouse Lamp Company.

The meetings are in no sense an effort to sell the audience any equipment or service, but are designed for educational purposes only and to bring interesting material to the merchant. Many merchants have expressed their appreciation for this work and have requested return engagements.

In order that the material may be made available for those unable to attend the meetings and for those who would like to have the material for reference and further study, the main points of the lectures are outlined in the following paragraphs.

Five Cardinal Principles Of Merchandising Practice

The success or failure of a merchant is dependent largely upon the application of the following five cardinal principles of retail selling:

1. Window display
2. Interior display
3. Asking people to buy
4. Increasing the unit or average sale, and
5. Going out after business.

Value Of Window Display

The value of a show window is estimated to be from 25 to 50 per cent of the rent. It is the merchant's advance agent and announces to the public the type and character of the merchandise, and service that may be expected inside. The show window should be a sales window and is therefore deserving of careful attention by the merchant.

Purpose Of Window

The successful show window performs four functions: (a) attracts attention; (b) creates interest; (c) arouses desires, and (d) leads the customer inside the store to make a purchase. These are the standards by which all windows are judged.

Factors Of Window Dressing

The following factors of window dressing should be carefully checked:

(a) *Cleanliness:* A dirty window with fly specks and cobwebs repels instead of attracting attention.

(b) *Lighting:* The reflectors should be spotlessly clean. Burnt out bulbs and empty sockets should never be allowed as they denote carelessness and indifference. The lighting intensity should be sufficiently high to attract attention, offset reflection of street traffic and enable the goods to be seen easily. Good window lighting practice calls for an intensity at least five times that of the store interior. Lighting is the most effective and inexpensive means of attracting attention.

(c) *Background:* This depends largely on type of merchandise displayed. Display specialists are about evenly divided as to effectiveness of open or closed background.

(d) *Balance:* The goods should be so arranged in the window as to conform to the laws of balance with the majority of the merchandise centered near the attention center, which is a point near the center of the window, one foot below the eye level of the average pedestrian and about two feet back of the front of the glass.

(e) *Color and Animation:* Color harmony is always desired and its laws must be observed for the successful window. A simple color wheel is of much value in obtaining color harmony. The interchange of color with motion gives life and animation to the window.

(f) *Merchandise to Be Displayed:* It has been found by test that leaders, specialty items, bargains, appropriate seasonal goods, and everyday items, offer the greatest return when displayed in the window.

(g) *Arrangement of Merchandise:* Arrangement in the window should be governed largely by the natural setting of the material featured.

(h) *Price Mark:* Is especially desired for bargain items and goods whose value is desired to be stressed.

(i) *Sales Window:* The show window should be a sales window and should tell as near as possible the same story that would be told by the sales person if a customer came inside the store.

Store Interior

The store interior by its layout and buying atmosphere should perform the same function as the show window, that is, attract attention, arouse interest, create desire and lead to a sale. Goods should be displayed where they can be seen, handled and bought. Never store merchandise in bins and boxes or behind wall cases and in wrappers. A large number of sales are lost because the customer did not know the particular article was carried. Goods well displayed are half sold. Appeal should be made to each one of the senses; sight, hearing, smelling, tasting and feeling.

Store Layout

The display tables and counters should be so arranged as to obtain the largest amount of store traffic. The cash register and most popular articles should be displayed in the rear of the store and the other items arranged in the front and in such a manner that the customer will be exposed to the greatest amount of merchandise. The merchandise should also be displayed in related groups.

Display Counters

Display merchandise and not fixtures. Arrange merchandise so as to suggest companionate items. Open type counters are most effective because they invite shoppers to feel and handle the merchandise as well as see it. Companionate items help to increase the unit or average sale.

Store Lighting

Eighty-seven per cent of all merchandise is sold through the medium of sight.

Half of the people have defective vision and a large number are not aware of it. It is therefore necessary that the store be well lighted in order that an effective display may be appreciated.

Signs of Good Lighting

(a) There should never be any burnt out bulbs or empty sockets.
(b) All light sources should be shielded to prevent glare.
(c) All walls and fixtures should be clean to reflect the light.
(d) Lights should be hung so that the customers and clerks will not cast shadows or be in their own light.
(e) The lighting intensity should be sufficiently high to permit the quality of the goods to be easily detected.
(f) Local lighting such as show cases and wall brackets are a valuable adjunct to effective display.

Price Mark All Merchandise

Price has direct bearing on the value of a commodity. Many sales are made through the desire to own and not directly through necessity. To make the sales story complete and effective as well as to avoid mistakes and confusion it is necessary that every article be plainly price marked.

Buying Atmosphere

It is estimated that in the South 81 per cent of all purchasing is done by women. They enjoy shopping and will linger longer in stores that are clean, well lighted, where the merchandise is attractively displayed, and where the clerks are courteous and considerate.

Asking People To Buy

Surveys have proven that the majority of people do not object to being asked to buy. The merchant who sells a customer only the article which he comes in to buy does not perform a service, he only fulfills his obligation as a storekeeper, not as a merchant. People may be asked to buy directly or indirectly by the following means:

Means Of Asking People To Buy

Sight—
1. Effective display.
2. Signs.
3. Demonstration.

Hearing—
1. Verbally.
2. Musically.
3. Appropriate sounds.

Sense of Smell—
1. Cleanliness.
2. The odor of many commodities have an effective appeal.

Tasting—
Samples of tasty articles as samples.

Feeling—
1. Close inspection of merchandise by handling. The most effective appeal that can be made for an automobile is to have the prospect drive it. Many other goods are sold by having prospect feel it.
2. Ventilation of store is essential for customer and clerks to feel in a receptive mood.

Increasing The Unit Or Average Sale

By increasing the number of articles sold each customer the volume of business and profit is multiplied many fold. This average sale can be built up by:

(a) Suggesting companionate items.
(b) Suggesting additional quantity of same item.
(c) Suggesting additional unrelated items.

Going Out After Business

This subject is very broad and can only be touched on in a meager way. The application of the four foregoing principles are several ways of going after business. Other means of getting additional business that may be suggested are:

(a) Increasing the items of merchandise carried.
(b) Increasing the service of the establishment such as charge accounts, free delivery, curb service, etc.
(c) Increase the sales force by house to house solicitors.
(d) Increasing the amount of advertising done. Effective advertising mediums are:
1. Newspapers.
2. Direct mail.
3. Hand bills.
4. Bill posters.
5. Radio.
6. Telephone.

Conclusion

It will be noted that no attempt has been made to cover the entire field of store management. The subjects of accounting, purchasing, personnel, etc., will be made the subjects of future meetings. The Commercial Lighting Engineers of the Alabama Power Company are in a position to obtain information on any phase of retailing and will be glad to assist any of the customers in the solution of their problems.

APPENDIX "B"

GOOD LIGHT MAKES JACK A BRIGHT BOY

A 20 per cent reduction in school failures has been the result of a two-year test in class room lighting conducted by the Tuscumbia (Ala.) City Schools in cooperation with Alabama Power and General Electric engineers.

Faced with the statements of educators that from 8 to 15 per cent of school children acquire defective vision within the few years of their school lives, F. C. Albert, a Lighting Engineer of the Power Company, sought the aid of R. E. Thompson, Superintendent of the City Schools at Tuscumbia, in an experiment which he hoped would prove his theory that poor lighting in the average school is the thief that is robbing so many of the nation's children of good vision.

The school building chosen for the test was completed in 1930 and both in design and furnishings compares with the most modern practice. Two rooms were selected containing the same floor space and window area and with the same exposure to the sun. Each was already equipped with two 150-watt direct lighting fixtures controlled by a wall switch. In one this lighting equipment was permitted to remain unchanged, and in the other it was replaced with four Curtis 300-watt totally indirect fixtures controlled by a General Electric photo-electric relay or "electric eye."

This installation was designed to maintain an intensity of 12 foot candles of light and distributed it without glare in one part of the room and dark corners in another, as both conditions cause eye-strain and poor vision. Glare was avoided through the scientific placement of the totally indirect lighting fixtures. The desired lighting intensity was obtained by adjusting the "electric eye" to automatically turn on the electric light whenever sunlight became insufficient and the inside corners of the room became dark.

Arrangements were then made for these rooms to be used by sections of the sixth grade, and two sixth grade teachers, Miss Helen Blackburn and Mrs. Agnes B. Martin, who employed the same teaching methods, were assigned to do departmental work between the two classes.

All the pupils of the sixth grade were required to submit to the Standard Achievement Test and the Otis Intelligence Test. An equal number of pupils of the same rating were assigned to each room, and great pains were taken to balance the two groups as equally as possible in talents, intelligence and past achievements.

At the end of the first school year (1930-31), it was found that it had been necessary for the lights controlled by the "electric eye" to operate 34.1 per cent of the school hours to maintain 12-foot candles of light during school hours

on the last three rows of desks farthest from the windows. At the end of the second year the lights had operated 32.6 per cent of the school hours to maintain the same intensity of light.

The first year's test developed 4 failures out of 36 pupils in the light-controlled room (A), as against 11 failures out of 34 pupils in the other room (B), an actual decrease of 20 per cent. The standing of the children in Room (A) was so astonishing as to grades, attentiveness and alertness that the experiment was continued a second year to check the methods of dividing the classes as well as the results. The second year's results duplicated those of the first, there being 8 less pupil failures in Room (A) than in Room (B) out of 42 pupils in each room.

Of equal importance, the teachers testified "The children in Room (A) were much more alert, cheerful and attentive, while those in Room (B) seemed restless and sleepy on dark days and were harder to teach."

While no definite value can be placed on the intangible benefits to the children and teachers in the way of increased knowledge and improved and preserved vision, the test developed that controlled class room lighting will pay for itself in dollars and cents. The electric energy consumed in each room was metered and the cost of the additional electricity was $22.35 for the term. The annual cost of educating each pupil for the 1931-32 term was $28.00, Superintendent Thompson stated.

The tests prove beyond a doubt that "Good light makes Jack a bright boy" and are expected to claim the enthusiastic interest of both educators and oculists on the score that they promise a higher load factor in the use of limited and costly educational facilities and a decrease in the percentage of school children with defective vision.

SAFETY GROUNDING

(Continued from page 262)

to station grounds, grounding of metal housings, temporary grounding with chains, clamps, etc., the grounding of distribution transformer cases, and any other phases of the subject which require study from a safety standpoint.

Inasmuch as the subject of grounding embraces several aspects other than safety, it is believed that a technical study of the general subject will be the most effective way to secure coordinated treatment.

1933 PROGRESS REPORT ON OPERATING EXPERIENCE WITH RECLOSING CIRCUIT BREAKERS*

Summary of Previous Reports

During the early part of 1931, the Operating Practice Subcommittee of the N.E.L.A. Electrical Apparatus Committee started an inquiry into the practices of automatic reclosing cycles and relative interrupting capacities of oil circuit breakers. This work was undertaken by Mr. J. T. Logan, Operating Engineer of the Georgia Power Company. Mr. Logan prepared a report dated May 1, 1931, in which he summarized the results of a questionnaire which was answered by thirty-five operating companies. This information was amplified by him in a later report dated October 1, 1931.

The revised report covered the following related phases of the subject:

1. Service improvement through rapid initial reclosure.
2. Relative value of various reclosing cycles.
3. Need for revision of relative interrupting capacity rating schedules of oil circuit breakers.

The results of the questionnaire as given in this second progress report indicated that the practices of the various companies at that time varied rather widely. A large percentage of the companies were using a reclosing cycle of 15-30-75 seconds, although cycles of 60-60-60, 30-60-90, 120-120, 180-180-180, etc., were not uncommon. Three companies were using first reclosures with no inserted time delay. There was some tendency shown to decrease the time for the first reclosure. The data on the effect of the various reclosing cycles on the performance of oil circuit breakers were too meager to draw any conclusions.

The report also covered three years' experience of the Georgia Power Company in applying rapid initial reclosure of feeder circuits. It described the results of studies made by that company to reduce interruption to customers, occasioned by transient disturbances which caused operations of undervoltage devices, even though the customers involved were not being supplied from the circuit at fault.

The results of this company's studies showed that if the customer's equipment was properly protected, the great majority of motors and their driven equipment would satisfactorily coast over a period of zero voltage, varying from two to four seconds. Exceptions to this were found on motors driving silk looms, ice machines, rayon spinners, paper mills and newspaper presses. Usually only time delay undervoltage equipment is required, but a few installations require some additional equipment, such as field relays and unloading devices.

Records kept by four companies (see Table I) give the percentage of successful reclosures for the reclosing cycles being used at that time.

On the basis of this information, the Georgia Power Company applied rapid initial reclosure to several circuits. The time intervals used were 0 and 120 seconds. The third reclosure was omitted as it was felt to be unjustified.

A further progress report was prepared by Mr. J. T. Logan, under the same sponsorship, and this covered the progress made in this field from the period of Oct. 1, 1931, to Oct. 1, 1932. This report dealt principally with the

*A progress report sponsored by System Equipment, Engineering and Operating Group, Electrical Equipment Committee E. E. I. prepared by E. S. Fields, The Union Gas and Electric Company and presented at the November, 1933, meeting of the Electrical Equipment Committee. This report contains information from only a limited number of companies. The committee is proceeding to obtain further information.

COMPANY—	No. of Oper.	Percentage of Times Service Restored After Reclosure: 1st	2nd	3rd	Per Cent Lockout	Failure to Reclose
Alabama Power Co.	901	87.6	4.1	.55	7.1	No record
Tenn. Elec. Power Co.	481	81.0	2.7	1.25	14.35	available
West Penn. Power Co.	390	87.2	4.1	1.02	6.15	
Georgia Power Co.	1111	87.5	3	1	8.5	
Totals	2883	86.3	3.43	.9	8.7	

TABLE I

subject of rapid initial reclosures under the following headings:

1. Performance during 1932.
2. Relation to time delay undervoltage protection.
3. Relation to synchronous motor applications.
4. Circuit breaker performance.
5. Effect on future design of circuit breakers.

The material included in this report under the above headings is summarized here:

1932 Performance

The Georgia Power Company equipped seventy-six feeders ranging in voltages from 2.3 kv to 66 kv with rapid initial reclosing devices. This necessitated modifying reclosing relays to provide the fast initial reclosures, modifying protective relays to accomplish more rapid opening of contacts and adapting both to the mechanical limitations of the breaker operating mechanism.

The Alabama Power Company and the Tennessee Electric Power Company also equipped several feeders in this manner during the first eight months of 1932. The records kept by these three companies on these feeders gave the results shown in Table II.

Failures to reclose are omitted from number of breaker operations in order to give a better idea of the reclosing probability.

When these results are compared with those obtained in 1931, it is noted that when rapid initial reclosure was applied, the percentage of successful first reclosures decreased considerably, while the percentages of successful second reclosures increased. The chief reason for this is that certain types of faults persist longer than the time interval between the initial opening and the first reclosure. This type of fault is caused largely by tree interferences, and is especially noticeable on voltages lower than 22 kv. Another factor is the slow speed of contact opening of many protective relays.

Experience gained in the period between Oct. 1, 1931, and Oct. 1, 1932, indicated that with slow time initial reclosures, the third reclosure was of little value. Later statistics indicated that with a rapid initial reclosure, the slow clearing types of faults were great enough in number to warrant an intermediate reclosure, especially on voltages below 13.2 kv.

Relation to Time Delay Undervoltage Protection

Experience gained in the period from October, 1931, to October, 1932, as reported in progress report No. 3, indicated that the conventional one and one-half seconds maximum time delay undervoltage relay was unsatisfactory. A relay having two and one-half seconds time delay would be preferable. The reason given for this preference was that the period of low voltage on the motor may be longer than the actual period of low voltage on the supply itself. The period of low voltage on the motor consists of two parts: (1) the period of low voltage on the supply itself; and (2) the period of low voltage resulting from the reactive drop through the supply transformers during the time the motors are being accelerated. This is explained by charts which were included in the 1932 report and which are reproduced in Fig. 1 of this report. It was estimated that a time delay of two and one-half seconds in the undervoltage device, together with rapid initial reclosure, would eliminate about 90 per cent of unnecessary motor shut-downs. An interval of one and one-half seconds would not eliminate more than 50 per cent of them.

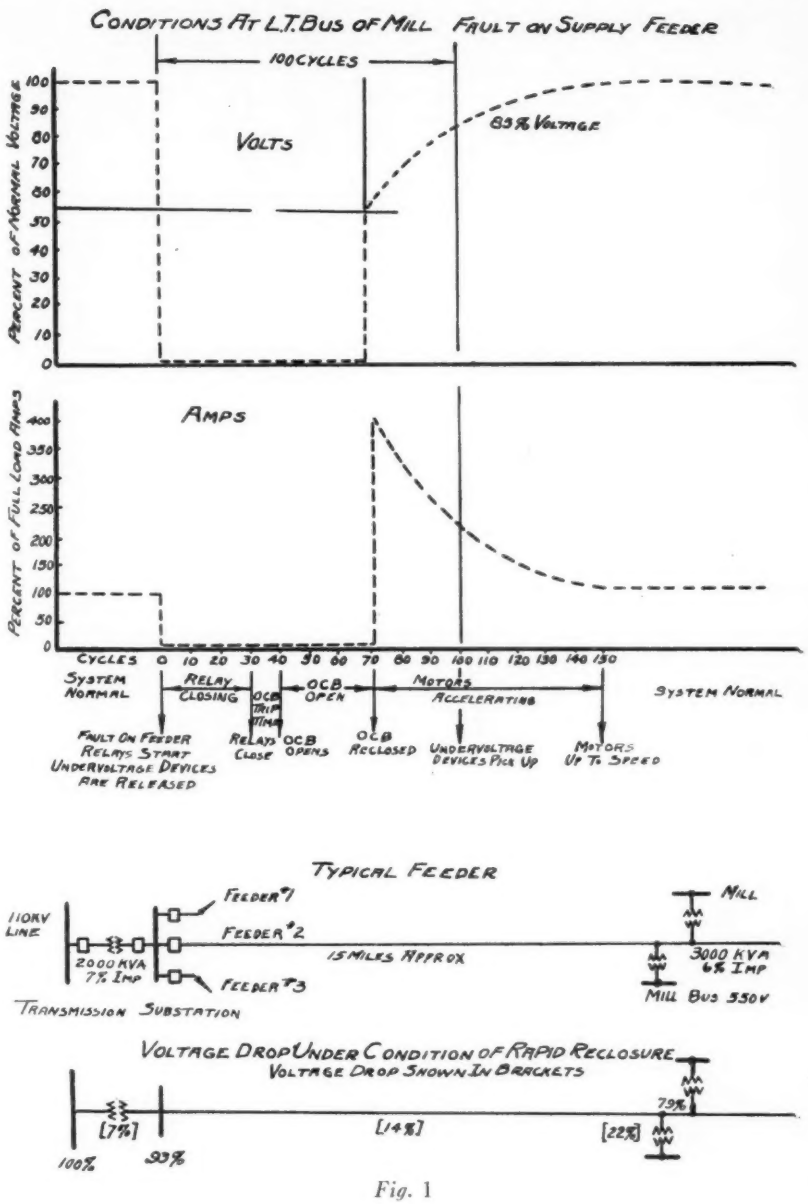


Fig. 1

COMPANY—	No. of Oper.	Percentage of Times Service Restored After Reclosure: 1st	2nd	3rd	Per Cent Lockout	Failure to Reclose
Alabama Power Co.	434	71.6	19.4	1.85	7.1	17
Georgia Power Co.	1042	74.8	15.2	3.7	6.4	29
Tenn. Elec. Power Co.	183	67.8	13.1	..	19.	17
Totals	1659	73.3	16.	2.8	8.	

TABLE II

Relation to Synchronous Motors

In the majority of applications, synchronous motors, with the proper control equipment, can be made to withstand surges of greater duration than induction motors, since the inrush current after the voltage recovers is usually less. If the motors have as much as 90-100 per cent starting and pull-in torque, all that is required is instant removal

of field and reapplication after the motor has reached approximate synchronism. If the motor is of the low pull-in torque types, automatic unloading devices are required in addition to the field equipment. It is important, also, that the control equipment be either of the time delay release or latch-in type, or held closed by d-c potential, to prevent the control relays themselves from opening on momentary voltage disturbances.

Circuit Breaker Performance

During the period covered by progress report No. 3 none of the oil circuit breaker failures could be attributed to rapid reclosing cycles. It is doubtful whether this field experience can be used to determine breaker derating factors since circuit power factors, recovery voltages, etc., are too variable.

Effect on Future Design of Circuit Breakers

The experience obtained with fast initial reclosures seemed to indicate that it would be desirable to reduce the overall time of relay and oil circuit breaker operations. On the Georgia Power Company's system there is a 44 kv oil circuit breaker which completes the C-O-C operation in 20 cycles, showing that this is entirely feasible. The percentage of successful first reclosures was as high on this circuit as on other similar circuits equipped with slower breakers.

Since it was also found in this instance that from 10 to 20 cycles was the usual time required for arc extinction, this company suggested that the development of circuit breaking devices be directed toward obtaining a shorter overall time for a C-O-C operation.

Service Improvements

In order to obtain the maximum benefit from rapid initial reclosing the Georgia Power Company has adopted the policy of investigating the customer's equipment without cost to him and furnishing recommendations as to desirable changes. Their Power Sales Engineers arrange for the investigation. By this means they are able to convince the customers of the value of proper time delay undervoltage protection. They estimate that within the past three years motors aggregating 50,000 h.p. have been properly protected.

To further illustrate the effect of

1933 PROGRESS REPORT

This progress report covers the work done and experience gained during the period between Oct. 1, 1932, and Nov. 1, 1933.

The information and data included were obtained from several of the operating companies who were pioneers in rapid reclosing cycles.

1933 Performance

Because of economic conditions, very few companies have installed additional automatic reclosing equipment during the past year. Three companies who were pioneers in rapid initial reclosing equipment and practice have kept accurate records of the performance of this equipment, and the data shown in Table III were obtained by them.

When these figures are compared with those submitted by the same group of companies for the previous report, it is noted that the percentage of successful first reclosures has been greatly increased. This improvement might be traceable to better maintenance of circuits and equipment, and to improvements in automatic reclosing schemes and equipment.

The data shown in Table IV were submitted by the Detroit Edison Company. These data also cover the period between October, 1932, and October, 1933. This company uses an interval of 15 to 60-60-60 seconds for 4.8 kv distribution and 60-60-60 for 4.8 kv power circuits.

The records for the various voltage classes indicate that the greatest benefit of rapid initial reclosure has been on circuits above 22 kv. The fact that rapid initial reclosure has apparently not been as beneficial on circuits below 22 kv indicates that for circuits of this class the second and even the third reclosure is very important, and must be considered for improvement of service.

Georgia Power Company

Circuit Voltage kv	Number of Operations	Percentage of Times Service Was Restored After Reclosure 1st	2nd	3rd	Per Cent Lockout	Failure to Reclose*
66	30	94	0	3	3	1
44	460	89	3	1	7	6
38	475	90	6	1	3	9
22	9	89	0	11	0	0
6.6	12	84	0	8	8	0
4.0	24	50	12	17	21	0
Total No. of Operations	1,010	88.7	4.5	1.3	5.5	16

This company uses a reclosing interval of 0-15-120 seconds.

*Failures traceable to reclosing control equipment 9.
Failures traceable to breaker mechanical faults 7.
Failures to reclose are omitted from number of breaker operations in order to give a better idea of the reclosing probability.

Tennessee Power Company

Circuit Voltage kv	No. of Oper.	Installations	Percentage of Times Service Was Restored After Reclosure 1st	2nd	Per Cent Lockout	Failure to Reclose
154-110	49	4	61	31	8	Not reported
66	52	9	65	23	12	
44	219	20	69	18	13	
22	38	2	63	26	11	
13.2	76	5	42	16	42	
11	367	26	61	27	12	
2.3	14	8	50	36	14	
Total	815	74	61	23	16	

This company uses a time interval of 0-120 seconds with no third reclosure.

Alabama Power Company

Circuit Voltage kv	Number of Operations	Percentage of Times Service Was Restored After Reclosure 1st	2nd	3rd	Per Cent Lockout	Failure to Reclose
Not classified	Not reported	71.6	19.4	1.8	Not reported	Not reported

This company uses a standard reclosing cycle of 0-30-120 seconds for circuits of all voltage classes.

TABLE III

Detroit Edison Company

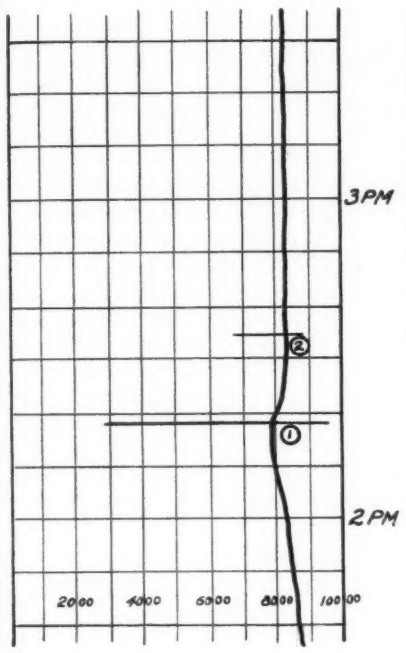
Circuit Voltage kv	Number of Operations	Percentage of Times Service Was Restored After Reclosure 1st	2nd	3rd	Per Cent Lockout	Failure to Reclose
Not classified	373	87.9	4.6	1.1	6.4	Not reported

TABLE IV

Chart No. 1 represents the load supplied a 38 Kv bus to which three radial feeders are connected. The kicks indicate typical tripouts followed by instantaneous reclosure of feeder breakers. Obviously, no service was interrupted.

Chart No. 2 represents the load supplied a 38 Kv bus to which four radial feeders are connected. The drop in load resulted when a heavily loaded feeder relayed out and was reclosed one minute later. The effect is typical for circuits not equipped for instantaneous initial reclosure.

Chart 1

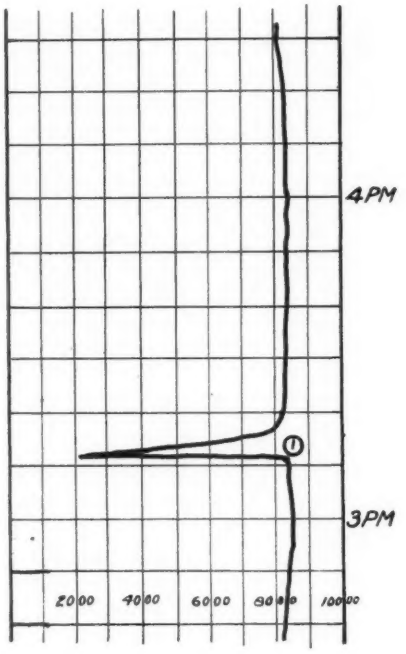


Kilowatts

(1) Two feeders supplying a total load of 5,500 Kw tripped out simultaneously, followed by instantaneous reclosure of circuit breakers. No service interrupted.

(2) One feeder supplying 1,500 Kw tripped out, followed by instantaneous reclosure.

Chart 2



Kilowatts

(1) Feeder tripped out for one minute resulted in loss of 550 KWH in load. The revenue lost by the Power Company, however, was negligible compared to that of the industrial customers whose manufacturing processes was abnormal for at least seven minutes.

Fig. 2

rapid initial reclosure two graphic wattmeter charts obtained by the Georgia Power Company are reproduced in Fig. 2 of this report. The charts are self-explanatory.

Application of Automatic Reclosing Equipment to Tie Lines

Application of automatic reclosing equipment to tie lines is still a much debated subject and more information on this point will have to be obtained before any conclusions can be reached. Several companies have applied this type of equipment to low capacity tie lines.

One company applies automatic reclosing at the end of the line which normally has the preference and the reclosing equipment is provided with a potential lockout. The other end of the tie line, if automatic, will have automatic synchronism check or automatic synchronizing equipment.

Oil Circuit Breaker Performance

All companies reporting state that they have not experienced any oil circuit breaker failures or increased maintenance due to the application of rapid initial reclosure. The practice of these companies in applying derating factors varied widely, some not derating at all, others derating somewhat, and still others applying the standard derating factors. As stated in the résumé of the previous reports, the results obtained by various companies in this respect are not directly comparable due to the absence of any standard conditions of circuit power factor, rate of voltage recovery, amount of maintenance, etc.

Future Requirements

There appears to be an increasing demand for oil circuit breakers requiring a shorter time to complete the C-O-C operation than the equipment now available. There is also a need for less expensive protective schemes to obtain faster relaying of circuits. It is felt by some that the time required for faults to be cleared is as important as the time required to re-energize the circuit again.

THE UTILITIES PROBLEM

(Continued from page 272)

ment—in other words to lay the cards on the table so that we may all know what the administration has in mind. In my opinion this is very wise and sound advice and should certainly be the policy of our industry in presenting our story to the administration in Washington. It is lamentable, but true insofar as we can determine, that as an industry we have not taken our problem up with the administration heretofore, with the exception of individual interests which has only meant solving their particular problems, and we have been justly criticized for not having representation of the industry as a whole presenting the full and complete picture. As we see it, we have nothing to hide from the administration. It is true that mistakes have been made in our industry, but where is the industry in which similar faults have not occurred?

In conclusion let me state that we should advocate a strong offensive against increasing tax burdens and the unfairness of exempting municipal operations from paying the federal excise tax and the discrimination of RFC funds and other public money loaning agencies against the operating utilities when these same agencies are loaning money to finance competitive operations, further destroying any chances of the utilities aiding in the recovery program. Also sentiment should be built up against the sacrificing of legitimate operating companies for the sake of exercising punitive measures against holding companies, which is contrary to our inherent American sense of fair play.

Gentlemen, we can be justly proud of the industry in which we are engaged. The achievements of the light and power business during the past two decades speak for themselves, and I say to you that if our government attempts to impair or destroy the industry we should aggressively stand our ground and fight for what we know is right, and I thank God that we have men such as Mr. Mullendore, of California, in the industry who will lead our cause, and let all of us unite to save one of the greatest industries known in the history of our nation.

SALES COMMITTEE MEETS

Stock Taking on Salient Commercial Problems

By C. E. GREENWOOD
Commercial Director, Edison Electric Institute

That the commercial problems confronting the electrical industry are thoroughly recognized, and are receiving merited attention, was indicated in the discussion at the meeting of the Sales Committee held at the general office of the Institute on Nov. 23. Its forceful Chairman, George E. Whitwell, Vice-President, Philadelphia Electric Company, presided at an all-day meeting.

Industrial Power and Heating

W. H. Sammis, Commonwealth & Southern Corporation, reporting for the Industrial Power & Heating Subcommittee, of which he is chairman, reviewed the activities of his group in the study of competitive power, rates for the service, methods pursued in broadcasting helpful information to members on power subjects, and especially stressed the importance of contact work now being accomplished with industrial groups. Uniformity in power schedules for oil and pipe line pumping, power and heating problems of the foundrymen, and uniform contract forms for industry, assistance on operating requirements and costs to building owners and managers, and similar broad subjects were some of the committee activities discussed. Progress is gratifying. The common interest of utilities and consumers is being safeguarded. A subcommittee is cooperating with the Mid-continent Petroleum Section of ASME, the American Petroleum Institute and the Petroleum Electric Power Club in problems of common interest. Another subcommittee is investigating steam power development. Mr. Sammis brought out that much inaccurate information was being broadcast on power plants, and that his subcommittee is devoting attention to this matter.

Lighting Sales Activities

"The National Lighting Program for BETTER LIGHT, BETTER SIGHT has reached a stage," said M. E. Skinner, Chairman of the Lighting Sales Subcommittee, and also the National Lighting Program Committee, "where we are beginning to take account of results."

Chairman Whitwell having announced that the immediate success of the lighting program had justified further appropriation for its extension, Chairman Skinner explained that there would be four more issues of *Lighting News*, with publication once a month. The December issue featured decorative lighting, and other issues will feature commercial and industrial lighting.

Mr. Skinner explained that manufacturers of lamps and lighting equipment had been given opportunity to express opinion on the results of the lighting program to date, and replies generally were enthusiastic. Continuation of the program was urged. A large number of commercial managers have written approval of the program and there have been expressions that it should continue not only through March, but should be taken up again next fall and carried on.

In commenting on the report of Mr. Skinner, Mr. Whitwell presented a scrap book filled with local plans and publicity, and specifically commented on the wide support of trade publications, some of which had special "lighting issues." For example, *Electrical World*, *Electrical Merchandising*, *Electrical Dealer*, *Electrical West* and *Electrical South* featured a lighting issue. *Electrical Wholesaling* and *Electrical Contracting* featured BETTER LIGHT, BETTER SIGHT articles. Going outside of the industry, we find coordinated publicity by *Hardware Retailer*, *American Builder*, *Pictorial Review*, *Arts and Decoration*, *Mill and Factory* and other publications.

Summing up his report, Mr. Skinner said it was the consensus of opinion that there had been a marked increase in central station activity, with many utilities increasing their normal activities and many inaugurating major activities, that had not done so previously; the personnel promoting lighting was estimated at double the usual number; interest of jobbers and dealers had been greater, with a better spirit of cooperation; related industries, the paint companies in particular, are using the "new approach" and the need for lighting to sell their product. Mr. Skinner recommended that additional emphasis be put on commercial and industrial lighting as promptly as business improved.

Hotels Statler Tie-In

Members of the Sales Committee were gratified to hear the presentations by H. William Klare, vice-president, Hotels Statler Company, Inc., and C. C. Wilmot of Fuller & Smith & Ross, Inc. Mr. Skinner had invited these guests to tell their own story of the publicity campaign to carry the Statler certified lighting message to the public. This adds another innovation to Statler services. A BETTER LIGHT, BETTER SIGHT folder entitled "The Eyes Have It," has been prepared by the Statler Company. The folder explains how lighting has been certified, by use of the sight meter, in all guest rooms for general illumination, for reading at the bed-head, bathroom mirror, writing table, or over the easy chair in each room. Attention is called to certified illumination by a slip under the glass of every bureau. Newspaper advertising in more than fifty cities announces "The first hotels in the world with certified guest room lighting."

The Sales Committee was so impressed with this advanced thinking taken by a leading hotel chain, that copies of the publicity have been circulated to all members of the Institute for their information and action. This is the most outstanding feature tie-in with the BETTER LIGHT, BETTER SIGHT program, and comes out of the "new approach" to better lighting through the sight meter.

H. F. Barnes, Promotional Manager of General Electric Company, and J. F. O'Brien, promotional manager of Westinghouse Lamp Company, members of the National Lighting Program Committee, were also guests of the sales committee. Both of these gentlemen spoke enthusiastically about the lighting activity from the manufacturer viewpoint, and expressed conviction that marked benefit would be derived by those who participated. Mr. Barnes and Mr. O'Brien and the companies they represent have given substantial support to

the lighting program, and on motion of W. H. Hodge, Vice-President of Byllesby Engineering & Management Corp., a resolution of thanks of the sales committee was duly accorded them.

Air Conditioning

Reporting for the Air-Conditioning Subcommittee, Chairman C. E. Michel, Union Electric Light and Power Co., St. Louis, brought out that it is now the time to compile the latest and most authentic information on the status of air-conditioning in all classifications. Previous committees have collected data on commercial and industrial installations which are now being brought up to date, and Mr. Michel referred to the preliminary report on domestic air-conditioning which had been published in the early summer.

There appear now to be questions of general character which should be given attention. To this end Mr. Michel will carry through his fact-finding under six general divisions. There must be determination of a utility definition for air-conditioning to be recommended for industry use; collection of information on the uses of air-conditioning in the industrial, commercial and personal (residences and private offices) fields; the gathering of factual data for specific uses of air-conditioning equipment; recommendations of sales and promotion methods for increasing air-conditioning load; collection of technical data on air-conditioning equipment, and study and investigation of new equipment and methods. These subjects have been assigned and it is anticipated that next spring a valuable report will be made available to our members.

Rural Service

P. H. Powers, Vice-President, West Penn Power Company and chairman of the Rural Sales Subcommittee, outlined rural sales problems and what the committee hoped to do in analysis and recommendation. He said the problem of rural electrification naturally divides into the sale of maximum service to customers who are now connected, and secondly, the extension of present service, involving rules, guarantees, minimums, rates, etc. Mr. Powers' subcommittee will center its activity on the former phase, which seems to be most important. There is now available considerable information on rural service extensions which will be useful to member companies.

In promoting rural sales development, immediate benefit can be given in the sale of rural service to customers and a long-range sales program can be developed. A clearing house of information on successful selling plans will be helpful, and with this in mind the Rural Sales Committee will revive the monthly news bulletin *Rural Electrification Exchange*. The assistance of Dr. E. A. White, Director of C. R. E. A., has been assured and it is expected that the first mimeographed bulletin will be released in January. The mailing list will be limited to rural sales representatives of member companies.

In discussing ways and means of gaining interest of farm customers in the profitable use of electric service, it has been suggested that local essay contests be developed on the theory that the farmers will be more interested in the statements and experiences of their neighbors than in the sales talks of manufacturers, utilities and others. This question is now under advisement.

The ultimate objective of the subcommittee will be a long-range market development program, with coordination of efforts of equipment manufacturers, farm associations, farm publications, the utilities and State agricultural colleges and farm agents.

Mr. Powers said that the non-farming rural customer will not be forgotten. This group far exceeds in number the total of all farming classification, and offers wide opportunity for market development.

THE FIRST HOTELS IN THE WORLD WITH
Certified Guest Room Lighting
The illumination of every guest room in every Statler is certified to be ample (certificate is displayed in the room) as follows:
Illumination at center of room ample for reading normal print, as registered on the Sight-meter.
Illumination at bed-head . ample for reading fine print, as registered on the Sight-meter.
Illumination at bathroom mirror . ample for close visual work, as registered on the Sight-meter.
Illumination at writing table . . ample for reading fine print, as registered on the Sight-meter.
Illumination over easy chair . . . ample for reading normal print, as registered on the Sight-meter.
Every guest room in every Statler is regularly checked with the Sight-meter to keep its lighting ample.
● Every minute you're in a hotel room your eyes are busy except when you're sleeping. That means they're at the mercy of the lighting . . and what lighting your eyes have had to endure in hotel guest rooms!
Now the Statlers set a new high standard of guest room illumination—and guarantee it to be ample according to scientific measurement. Now your eyes, along with the rest of your body, find every provision for true comfort in these hotels.
Our part in hotel improvement has been that of the originator the pioneer. The private bath with every room; the bed-head reading lamp; the morning newspaper under the door; free radio reception—these are a few of many comfort features the Statlers have pioneered. Furthermore—these houses have introduced a long list of outstanding service features, too such as the elimination of unsolicited tip-seeking attentions in public washrooms . the removal of surcharges from articles sold at lobby cigar stands and newsstands . . the banishment of the hat-check tip at the entrance of our public restaurants.
This originating . . . this pioneering . is constantly going forward. It goes forward in order that you may find here more in service . more in comfort . . more in convenience than is afforded elsewhere . . and you do!
HOTELS STATLER
"WHERE THE GUEST IS ALWAYS RIGHT"
Cleveland ROOMS BEGIN AT 2.50
Buffalo ROOMS BEGIN AT 3.00
Detroit ROOMS BEGIN AT 3.50
St. Louis ROOMS BEGIN AT 2.50
Boston ROOMS BEGIN AT 3.50
New York (Hotel Pennsylvania) ROOMS BEGIN AT 3.50
THIS IS THE SIGHT-METER
science's newest aid to adequate illumination. Without such a measuring device there could not be CERTIFIED LIGHTING. You'll find Sight-meters conspicuously displayed in every Statler Hotel. Look for them—and for the certificate displayed in every guest room . . . guaranteeing the illumination.

Specimen of "Certified Lighting" Advertising by Hotels Statler

Codes

At the request of Chairman Whitwell, Mr. Alexander Maxwell, Engineering Director of the Institute, informed the committee on the developments of the code now in preparation for the construction industry. The construction industry as a whole entered a code with the NRA. Then it made full provision for subsidiary codes that would relate to the practices in the various de-

partments of construction. Power development is included as one of the items. Mr. Maxwell explained that the proposed scope is so wide that it encompasses central station practices, erection, servicing and minor features. The electric power industry, jointly with the telephone industry, entered objections to that scope, asking for exceptions for central station operations on the basis of construction as it related to plants owned and operated in rendering service, and also with respect to the servicing to the customers. The exception was granted so far as concerned plant construction.

The matter of servicing on consumers' premises has been cleared up and a suitable exception was made in the electrical contracting sub-code. Original wiring done on the consumer's premises will probably be under the constructors' code.

The proposed electric light and power industry code was discussed, especially the sections referring to fair practices in merchandising. It was brought out that many companies were operating under conditions laid down in the retail code, although not signatory to it. Various conditions of the codes affecting load building were discussed, and in view of approaching meetings of the Code Committee of the Institute to determine on final provisions of the code, the committee adopted a resolution which was prepared by Messrs. H. M. Sawyer and H. F. Smiddy of New York and A. A. Brown of Oklahoma City.

Proposed Survey Street Accidents

Chairman Whitwell introduced correspondence on the subject of a study under the sponsorship of the National Bureau of Casualty and Surety Underwriters involving securing statistics on accidents throughout the year on cities over 100,000 population. Location of accidents will be studied and correlation with traffic flow and street illumination levels.

A resolution was offered, and adopted by the committee, giving hearty endorsement of this survey to be made under the direction of R. E. Simpson, consulting engineer, and recommending to utility companies "to render local assistance in this study by contribution of the services of men to obtain needed information."

Wiring

Outlining new developments in wiring, J. D. Noyes, Detroit Edison Co., Chairman of the Wiring Subcommittee, referred to the new approach in wiring and new fields for the small contractor to explore. The urge of the utility companies to increase electric service at lowest cost consistent with good business has resulted in the development of new wiring methods. Services that used to cost $10 to $11 are now nearer $4. Manufacturers have been producing simplified wiring systems and materials. Naturally there are those that are sceptical of the success of new developments, but certain manufacturers have been going ahead along the lines discussed with committees, and a job lies ahead to sell the idea.

Mr. Noyes referred to the National Electrical Code and the discussions built up around certain progressive changes which it is hoped may come about. Such advancement is dependent on the meeting of different groups with open minds, and exhaustive discussion of the factors involved. Material to be approved must be listed by the underwriters and this listing responsibility is placed in the hands of a single private corporation. Approval involves specifications to a large extent, and these specifications relate to safety.

It is unfortunate that there are contractors who represent any changes in wiring material or wiring methods as an attack on "safety." If this viewpoint cannot be changed, we need a more liberal code. Mr. Noyes said that the performance of some of these newer materials on test in the field convinces us that wiring can be done according to highest standards and specifications yet at lower cost to the consumer. Low spending margins will require a downward adjustment in costs if we are to meet the present demands for load building.

Mr. Kettering of General Motors Corporation is credited with saying that standardization is primarily responsible for the depression. That holds true in the wiring field. We need new ideas and new products. The experimental work of utilities in wiring should not be hampered by interpretations of the code, which is a record of existing practices.

Mr. Noyes was optimistic that the informal industry conferences held at Pittsburgh by W. H. Horton, former chairman of the Wiring Committee, might be resumed and an industry code program could be developed.

Residential Sales

Chairman D. M. DeBard, Stone & Webster Service Corp., summarized the discussions at two previous meetings of the Residential Sales Subcommittee, at which the all-important subject of domestic load building was the major issue. "The major programs on refrigeration, electric cooking and lighting," said Mr. DeBard, "have adequately taken care of the promotion of these services." However, the committee has been putting much attention on the advantages and disadvantages in promoting the electric kitchen. A subcommittee is now making a study to ascertain the extent of the interest of department and furniture stores; to determine what the utility companies have accomplished, especially through their home service departments; to gather data on what local electrical associations have done, and to obtain the viewpoint of interested manufacturers. The aggressive work of certain manufacturers outside of the electrical industry, manufacturers of nickel products, linoleums, paints and cabinets, was cited. There was a consensus of opinion that the Institute should undertake an electric kitchen activity, educational in character.

It was voted to compile valuable data on electric water heating which is supplemental to the field tests of two years ago, and to publish such material for the benefit of the members of the Institute.

Local cooperative load building plans were discussed, especially the possibility of revivifying small appliance selling. It is recognized generally that the smaller heating and motor driven appliances have not received merited attention. Mr. DeBard presented a resolution that an activity promoting table cookery should be arranged and conducted along the lines of the BETTER LIGHT, BETTER SIGHT program. This was accepted by the Sales Committee, and Chairman Whitwell assigned the preparation of such a plan to the Residential Sales Subcommittee. Mr. DeBard also advised that a survey of the trial or rental plan was now in progress.

Advertising

Following the report of the Residential Sales Subcommittee, Chairman Whitwell invited A. B. Collins, field representative of the National Electric Cookery Council, to present an advertising idea. Mr. Collins has created a character — Reddy Kilowatt — which personifies Electric Service, the unknown electrical servant which performs miracles in the household. The lightning streak of his body, his incandescent nose, the "receptacled" ears identify Reddy Kilowatt with the electrical industry only.

Mr. Collins has patented the figure and copyrighted the name and proposes

(Continued on page 284)

OVER A MILLION ELECTRIC REFRIGERATORS SOLD IN TEN MONTHS

Chairman Davidson Urges Cooperation in Refrigeration Bureau's Final Activity of Year—Kansas City Receives First Award

Sometime during the latter part of the month of October the sale of the millionth household electric refrigerator in 1933 was made. The sales for the first ten months of the year, as tabulated by the Electric Refrigeration Bureau, totalled 1,010,245 units. Thus the Bureau's long-coveted goal, a million sales in a single year, has been realized.

The October sales, 49,676 units, exceeded those of October, 1932, by 21,579 units and set a new high comparative record for the sixth consecutive month.

In the ten months' period all but nine of the forty-eight states exceeded their quotas, and eight of those nine rated well above 90 per cent. Georgia led the way with 189.9 per cent, followed closely by Nevada, Alabama, Virginia and Texas.

Of the various regional divisions, the Southeastern, comprising the states of Alabama, Florida, Georgia, North Carolina, South Carolina, Tennessee and Virginia, with J. G. Holtzclaw as Regional Director, had the highest average percentage of quota realization with 167.5 per cent, as against the national average of 136.8 per cent. The East Central Division, comprising Kentucky, Ohio and West Virginia, with C. S. MacCalla as Regional Director, continued to hold second place with 162.1 per cent.

Davidson Urges Local Bureaus to Boost Holiday Display Contest

"The true test of any successful cooperative effort lies in what is accomplished after the battle is actually won," says Executive Chairman Davidson in a final plea to Local Bureaus to unite in making the national Holiday Window Display Contest the crowning achievement of a successful year.

"To stimulate Christmas holiday sales," says Mr. Davidson, "the national Bureau is offering nine cash prizes, aggregating $700. Eight of these prizes are offered for the most attractive and most effective window displays of electric refrigerators which accentuate the desirability of a refrigerator as a Christmas gift. Of this prize money, $300 is available for dealers and a similar amount for central stations.

"We would be remiss if we were to

ELECTRIC REFRIGERATION BUREAU
SALES—HOUSEHOLD MODELS ONLY—FIRST TEN MONTHS 1933

	YEARS QUOTA	TEN MONTHS QUOTA—92%	ESTIMATED TOTAL SALES	% QUOTA REALIZATION
New England Division				
Connecticut	15,316	14,091	17,012	120.7
Maine	6,234	5,735	5,434	94.7
Massachusetts	39,027	35,905	51,424	143.2
New Hampshire	4,009	3,688	3,719	100.8
Rhode Island	6,435	5,920	8,823	149.0
Vermont	2,626	2,416	2,652	109.7
Eastern Division				
Delaware	1,607	1,478	2,249	152.1
Maryland & D. C.	15,944	14,668	26,008	177.3
New Jersey	39,021	35,899	47,598	132.5
New York	123,949	114,033	190,679	167.2
Pennsylvania	68,754	63,254	99,362	157.0
East Central Division				
Kentucky	8,934	8,219	14,115	171.7
Ohio	51,228	47,130	66,087	140.2
West Virginia	6,149	5,657	9,876	174.5
Middle West Division				
Iowa	15,232	14,013	13,173	94.0
Kansas	11,343	10,436	11,630	111.4
Missouri	22,078	20,312	35,783	176.1
Nebraska	7,837	7,210	8,237	114.2
Pacific Coast Division				
Arizona	2,295	2,111	2,331	110.4
California	62,735	57,716	58,249	100.9
Nevada	569	524	989	188.7
North West Division				
Idaho	2,582	2,375	2,242	94.4
Montana	2,785	2,562	3,353	130.8
Oregon	7,893	7,262	7,029	96.7
Utah	3,850	3,542	4,343	122.6
Washington	14,270	13,128	11,527	87.8
South Eastern Division				
Alabama	5,470	5,032	9,473	188.2
Florida	7,687	7,072	9,632	136.1
Georgia	6,537	6,014	11,423	189.9
North Carolina	8,601	7,913	13,642	172.3
South Carolina	3,427	3,153	5,391	170.9
Tennessee	7,830	7,204	9,401	130.4
Virginia	8,733	8,034	14,833	184.6
Great Lakes Division				
Illinois	61,455	56,539	69,614	123.1
Indiana	22,386	20,595	21,925	106.4
Michigan	35,191	32,376	31,037	95.8
Wisconsin	20,689	19,034	17,394	91.3
North Central Division				
Minnesota	15,809	14,544	14,149	97.2
North Dakota	1,996	1,836	1,772	96.5
South Dakota	2,558	2,353	2,361	100.3
Rocky Mountain Division				
Colorado	6,745	6,206	8,210	132.2
New Mexico	1,091	1,004	1,649	164.2
Wyoming	1,045	962	1,335	138.7
Southwestern Division				
Arkansas	3,664	3,371	5,359	158.9
Louisiana	6,525	6,003	7,186	119.7
Mississippi	2,742	2,523	3,166	125.4
Oklahoma	8,346	7,678	11,928	155.3
Texas	20,941	19,266	35,441	183.9
Totals	802,170	737,996	1,010,245	136.8

stop with the mere offering of these prizes, leaving the dealers and central stations to go it alone. An obligation rests upon every Local Bureau to see to it that every dealer member in every Bureau town participates in this display activity. As an incentive for such Bureau effort we are offering a special prize of $100 to that Local Bureau which is best represented by quantity and quality of displays submitted in the contest by its members in proportion to the total number of retail sales outlets in its territory.

"What the winning Bureau does with this $100 prize is not our concern. It may be used in celebration, saved for future activities or given to charity. But whatever is done with it, the winner ought to get a lot of satisfaction out of a job well done. Let's make this Holiday Display Contest a real nation-wide sales-winning activity. Then we can all have a Merry Christmas."

Judges Announce Winners of Prizes in Electric Refrigeration Week Contest

At a meeting held at the office of the Electric Refrigeration Bureau in New York on November 17th the judges of the Bureau's contest to determine the seven most successful electric refrigeration shows held during National Electric Refrigeration Week awarded the first prize of $500 in cash to the Electric and Radio Association of Kansas City, Mo.

The other cash prizes, six in number, were awarded as follows:

Second prize, $250, to the San Antonio Electric Refrigeration Bureau, San Antonio, Texas.

Third prize, $150, to the San Diego County Electric Refrigeration Bureau, San Diego, Cal.

Fourth prize, $100, to the Electrical Association of New Orleans, La.

Fifth prize, $75, to the Electrical League of South Jersey, Camden, N. J.

Sixth prize, $50, to the Essex Electrical League, Newark, N. J.

Seventh prize, $25, to the Spokane Electric Refrigeration Bureau, Spokane, Wash.

Honorable Mention was awarded to the Electric Refrigeration Bureau of Petersburg, Va., the Electric Refrigeration Bureau of Elizabeth, N. J., and the Electric Refrigeration Bureau of Claremont, N. H.

The Kansas City show was held at the Pla-Mor Arena from October 3rd to 7th and was in the nature of a joint celebration of Electric Refrigeration Week, Radio Progress Week and National Lighting Week. Fifteen refrigerator exhibitors participated and there was an attendance of 15,000 people with an admission charge of twenty-five cents for adults and ten cents for children. In announcing their decision the judges gave particular praise to the Kansas City Association for its ingenious and effective campaign of refrigeration publicity prior to and during the show.

The San Antonio exhibit, held in the San Antonio Public Service Company's building from October 2nd to 14th, was exclusively an electric refrigeration show. Floor sales in the two weeks of the exhibit exceeded those of the 1932 show which lasted three weeks. A fine campaign of newspaper, radio, window display and street car advertising was largely responsible for the show's success.

The San Diego County Electric Refrigeration Bureau, participating as a division of the Bureau of Radio and Electrical Appliances of San Diego County, staged its show from October 4th to 8th in conjunction with San Diego's first annual Electrical Exposition. In the four days and five nights the attendance was 51,000, the largest number of people ever to attend any fair or exposition in a similar period in the history of the city. The columns of the San Diego newspapers were jammed with refrigeration publicity throughout the week.

The decision of the judges was based primarily upon the amount and character of cooperative effort evidenced and the results obtained as compared with the scope of the local opportunity. In the appraisal of those results numerous points were taken into consideration, such as the amount and character of local utility cooperation, the total expense involved as compared with the number of sales made and prospects obtained, the proportion of advertising to other expense, etc.

The judges were H. M. Faust, New York Manager of the Curtis Publishing Company; L. H. Curtice, of the National Electrical Manufacturers' Association, and Ralph Neumuller, Manager of the Electrical Association of New York. In their report to the Bureau they stated that the competition was especially keen among all the seven prize winners, all of which reported practically 100 per cent cooperation of the refrigeration interests represented in their respective organizations. Only those cooperative organizations which made formal entry in the contest were eligible for consideration.

As soon as the judges' decision was made known checks were forwarded to the prize winners by Executive Chairman James E. Davidson, along with his personal congratulations. This was the first time that the Electric Refrigeration Bureau had ever sponsored a contest of this character in connection with its annual Electric Refrigeration Week, and the Bureau is particularly gratified over the enthusiastic spirit manifested by those organizations which entered the competition. In making these awards it expressed the hope that local Bureaus, Electrical Leagues and other similar organizations will be inspired to take a still greater interest in such cooperative activities in the future.

SALES COMMITTEE

(*Continued from page 282*)

to weave both into an advertising plan.

Members of the committee listened with interest to the many applications of this symbolic servant.

Testing

Chairman Whitwell presented a letter from Mr. P. S. Millar, Director of the Electric Testing Laboratories, on the subject of certification of quality of appliances. Mr. Michel, Chairman of the Technical Subcommittee of the Appliance Committee of the Association of Edison Illuminating Companies, explained the progress which had been made by that group in the testing of merchandise. In view of the lack of information by many utility companies on the accomplishments to date, it was resolved that immediate steps would be taken to acquaint the membership of the Institute with respect to certification of appliances, and the work of coordination between associations was assigned to the Residential Sales Subcommittee.

Electric Cooking and Refrigeration

G. R. Trumbull, manager of the National Electric Cookery Council, sketched recent developments in the cooking program. Field organization and dealer coordination are its major activities. The New Victory Range Contest, reported in the November BULLETIN, was highly successful, and the results of the contest have been summarized in a special brochure which included the sales and promotional methods employed by the prize winners and which gained for them national recognition. Mr. Trumbull reported 165 local organized councils now in operation, and the field men have addressed 312 meetings during the year to date. There have been innumerable conferences also held with utility officials, dealers and other groups. Where local councils have been organized, a sharp increase has been noted in the number of retail outlets for electric ranges, in some in-

(*Continued on page 291*)

TRANSMISSION AND DISTRIBUTION COMMITTEE MEETING

MARK ELDREDGE, *Chairman*

The second meeting of the Transmission and Distribution Committee was held at the William Penn Hotel in Pittsburgh on Nov. 21 and 22. It immediately followed a meeting of the Electrical Equipment Committee which was held on Nov. 20 and 21 at the same place.

Most of the subjects that had been assigned to sponsors were reported upon and in addition a few new subjects were brought up for discussion and consideration.

The following subjects were discussed:

Pine Pole Specifications—L. G. SMITH, Sponsor. Mr. Smith explained that he had distributed to members of the committee under date of Nov. 3 a report on pine poles dealing principally with pole life records and treating specifications. This report contained instructions and sample forms for use in reporting pole service data and a list of recommendations in connection with the revision of Specification 36b of the American Wood Preservers' Association, which is now under way. Members were asked to study Mr. Smith's report and make their comments to him as promptly as possible.

Distribution Transformer Standards—L. G. SMITH, Sponsor. This is a continuation of a joint activity undertaken by the Overhead Systems, Underground Systems and Electrical Apparatus Committees prior to the dissolution of N.E.L.A. A report on the replies to a questionnaire was circulated in September containing an expression of opinion on the polarity of single phase distribution transformers and the lead marking of three-phase transformers.

This report indicated that from the replies to the questionnaire, the trend of opinion is against a change in the present standards of polarity for power and distribution transformers. Therefore it is believed that the E.E.I. should do nothing further on this phase of the subject. There was some interest, however, in the standardization of the lead arrangement on three-phase transformers, mainly in behalf of those companies who have but few three-phase transformers in service. The companies who make extensive use of three-phase transformers desired to continue their present practice with regard to lead arrangement.

Interchangeable Cable Entrances for Manhole Transformers—L. G. SMITH, Sponsor. An historical outline on this subject had been prepared and circulated. It was decided that an article be prepared for publication in the BULLETIN which would embody the essential parts of the report that had been prepared and approved by the Underground Systems Committee for publication as a serial report.

Interconnection of Primary Lightning Arrester Grounds and Secondary Neutral.—Mr. Smith raised for discussion the subject of interconnection of primary lightning arrester grounds with the secondary neutral of distribution transformers. He explained that this subject had been discussed extensively in meetings of the Overhead Systems Committee and that experience indicated much in favor of this practice. However, it was pointed out that there was some diversity of practice in applying interconnection, on which operating experience should be obtained. Since the National Electrical Code is involved, this committee should actively follow this subject. It was decided that the collection and study of additional operating experience on this practice should be continued.

Weatherproof Wire Specification—D. W. ROPER, Sponsor. It was explained that this subject is now being given consideration by Technical Committee 12 of the A.S.A. Sectional Committee on Insulated Wires and Cables.

A specification for a weather resistant covering has been prepared, based on the research at Purdue University under the auspices of the Utilities Research Commission. Practically every group concerned in making this specification an American Standard has either approved or signified a willingness to approve a specification almost exactly as now worded. There remain a few points to be agreed upon, such as a bending test, the amount of slate dust to be included in the impregnating compound, and a more complete description of the cotton yarn to be used. It was said that the new specification covering could be produced at little, or no increase in cost over previous types of weatherproof covering. Most manufacturers are now able to supply the URC type of covering, and some of the larger companies are furnishing this regularly when no specification is designated.

Railroad Wire Crossing Specification—P. H. CHASE, Sponsor. Mr. Chase reported that a construction specification had been prepared jointly by a representative of the American Railway Association and the E.E.I. This specification, together with explanatory material, is now ready for distribution in both groups for comment. It is hoped that a construction specification can be prepared which will be mutually satisfactory to both railroad and power companies.

Lighting and Marking of Airways—P. H. CHASE, Sponsor. Brief mention was made of the American Committee on Marking and Lighting of Obstructions to Air Navigation which was formed about two years ago. Within this committee there has been formed a small working committee that has been engaged in analyzing accident data involving airplanes and overhead lines and structures, with a view to arriving at proper practices for the marking and lighting of such structures in the vicinity of airports.

Foreign Systems Coordination—H. P. SEDWICK, Sponsor. Due to the absence of Mr. Sedwick a report of this work was made by Mr. Silver. This is a continuation of the work that has been carried on for the past several years by the Foreign Systems Coordination Committee. The character of the problems involved was described and there was discussion as to the most satisfactory means for continuing the work.

It was stated that Mr. Sedwick had requested that he be relieved of the sponsorship of this assignment, due to the pressure of work now passing through his office. Chairman Eldredge stated that he would communicate with Mr. Sedwick to learn if it was possible for him to continue as sponsor, as his participation in this work over a long period of time had particularly fitted him for handling it. If it becomes necessary to appoint another sponsor, announcement will be made when the selection is decided upon.

Outages of Overhead Distribution Lines.—This subject was discussed by Mr. Roper, who reported that three or four companies having metropolitan distribution systems had been endeavoring to prepare a form which could be used by them in reporting distribution system

outages. It was explained that there is so much difficulty in preparing a form that will be suitable for general use that it was thought desirable to prepare a form for use on a trial basis by a few companies, with a view to deciding on what modifications would be necessary for general application.

Messrs. Roper, Dean, Haines, and Chase agreed to work up a basis of comparing outages on the four systems with which they are associated. On the basis of the experience gained in this way, proposals will be made for the reporting of system outages in general, and the items essential for a comparative study.

A-C Low Voltage Networks—C. T. SINCLAIR, Sponsor. It is proposed to secure a statement of operating experience with low voltage a-c networks during the years 1931-32 on a basis similar to that reported for previous years.

Mr. Sinclair reported progress, saying that a questionnaire had been prepared to circulate to the members of the committee for comment, and subsequently distributed to all those who had previously contributed to this study when it was under consideration by the Underground Systems Committee.

Accident Prevention.—Chairman Eldredge explained that in the formation of the E.E.I., no committee exclusively devoted to accident prevention had been provided by the Operating Committee, but that the three technical committees dealing with engineering subjects had been instructed to deal with their own accident prevention problems. It was explained that this had resulted in a general impression throughout the country that the E.E.I. was not planning to continue accident prevention activities, which is not the case. It was stated that the Transmission and Distribution Committee had now been assigned sponsorship for safety and accident prevention work. A member of this committee will be appointed to work with a representative from both the Electrical Equipment Committee and the Power Generation Committee in the formulation of a plan whereby the safety and accident prevention problems concerning the industry, together with the collection of accident statistics, will be handled. Details concerning this plan are expected to be announced within the near future.

Other subjects raised for informal discussion were: standardization of various parts of equipment used in transmission and distribution; the use of bare wire for secondaries; the investigation of present practices in selecting wood poles with a view to a more economical use of pole timber; foreign practices; the use of non-leaded secondary cable and the corrosion of subway transformer cases.

ELECTRICAL EQUIPMENT COMMITTEE MEETING

J. ALLEN JOHNSON, *Chairman*

The fall meeting of the Electrical Equipment Committee was held at the William Penn Hotel in Pittsburgh on November 20 and 21. Immediately following this meeting, a meeting of the Transmission and Distribution Committee was held at the same place. Fourteen members of the committee were present in person, or represented. In addition, twenty-three visitors, including many members of the Transmission and Distribution Committee, attended the meeting.

The committee reviewed the progress made in its program of work outlined at the meeting held last June. Progress was reported on practically every item of the program.

Energy Diversion

The Energy Diversion Subcommittee had held a meeting in Buffalo and had prepared a questionnaire to obtain information from companies as to the extent and devices for energy diversion, and means which each company was taking to prevent such diversion. The questionnaire will first be sent to members of the Electrical Equipment Committee.

Meter Mountings

The Meter Mountings Subcommittee had also held a meeting in Buffalo previous to this meeting and had prepared a questionnaire to determine the desires of the companies for standardization of meter mountings. The sponsor of this subcommittee was requested to obtain information on the possible savings to be effected through the standardization of meter mountings, and to send this information, together with the questionnaire, to members of the Electrical Equipment Committee.

Fractional Horsepower Motors

Mr. Fairman reported that progress was being made by the Joint Committee on Fractional Horsepower Motors and that this problem would probably be solved within a reasonable time, to the satisfaction of the interested parties.

Integral Horsepower Motors

After discussion by the members of the committee it was agreed that nothing was to be gained by the proposal for the standardization of the limitation of starting current of integral horsepower motors and the committee recommended that no further work be undertaken at this time.

Foreign Practice Subcommittee

Mr. A. H. Lawton, of the Canadian & General Finance Co., of Canada, has been appointed the chairman of the Foreign Practice Subcommittee. Mr. Lawton is planning to renew all of the foreign contacts which were formerly carried on by the Electrical Apparatus Committee and will carry on this work along the lines which had previously proven to be of benefit both to the foreign representatives and to the Electrical Apparatus Committee.

Oil Circuit Breaker Rating

Mr. Sutherland presented a table giving the derating factors to be applied to oil circuit breakers for different operating cycles as worked out by the EEI, AEIC, NEMA Joint Committee on Oil Circuit Breakers. The committee has agreed upon the derating factors for the various conditions of operation. However, some questions remain as to terms to be used and definitions to be worked out. The joint committee has also agreed that the standard rating of breakers shall be based on a 15 second interval between operations as against the present 2 minute interval.

Equipment Troubles

Mr. Sweetnam reported that he had sent a letter to all members of the Electrical Apparatus Committee of the former NELA, requesting that they advise him of any equipment failures. It is planned to collect this information from this group and summarize it at reasonable intervals. The summaries will be supplied to all individuals cooperating in the study as well as to members of the Electrical Equipment Committee.

Mercury Arc Rectifiers

Mr. Sims read a report prepared by Mr. Garrett of his office, giving plans for a study of mercury arc rectifiers.

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FALL MEETING OF THE JOINT SUBCOMMITTEE ON DEVELOPMENT AND RESEARCH

The fall meetings on the work of the Joint Subcommittee on Development and Research were held on December 7. These meetings were held at the American Telephone and Telegraph Company building, and the Bell System Chairmen presided. Mr. R. G. McCurdy presided at the meeting of Division 1, which treats of subjects involving noise frequency induction, and Mr. H. S. Warren at the meeting of Division 2, which deals with low frequency induction and structural coordination.

Division 1—Noise Frequency Studies:

The three project committees of this division presented reports on the progress of the work on their assignments during the past six months, and the work to be undertaken in the immediate future. Technical reports were presented by two of these project committees.

Project Committee 1B, which deals with noise evaluation, presented Technical Report No. 1B-5, entitled "Articulation Studies on the Effects of Noise." At the previous meeting, this committee presented a technical report dealing with the same subject. The previous report was prepared as a complete record of this work for the information of the Joint Subcommittee on Development and Research. The present report, which is in more condensed form, is intended for more general distribution. It discusses methods of measuring noise in telephone circuits with particular reference to an indicating noise meter now under development. A method of evaluating noise effects in terms of an equivalent loss in received speech volume is described which proved useful in the laboratory investigation. The report also discusses methods of computing the resultant noise from two or more component noises acting simultaneously, including the effect of room noises.

Technical Report 1C-13, entitled "The Impedances of A-C Supply Systems at Harmonic Frequencies to Residual Components," was prepared by the project committee which deals with wave shape. This is a companion report to Technical Report 1C-12, presented at the last meeting*, and the method of treatment is similar in the two reports. This report describes methods of estimating the impedance to residuals of a system by the use of an approximate equivalent circuit, each portion of which represents the impedance of a line or a piece of connected apparatus. A summary of the data required in calculating the impedance to residuals of overhead and cable circuits, transformers, reactors, voltage regulators and various types of rotating machinery is presented, together with the required formulas. A reciprocal relationship between inductance and capacitance is used to simplify the computation of the capacitance-to-residuals of overhead circuits. The report also includes several examples, worked out to illustrate the method of using charts and formulas and of combining the equivalent impedances of the various circuit elements. Studies of this kind are of particular value in cases where it is suspected that a condition of resonance in the residual circuit of the power system at or near some harmonic frequency is an important factor in a noise induction problem.

*E.E.I. Bulletin, June, 1933.

Division 2—Low Frequency Studies:

The six project committees of this division reported on the progress of their work during the past six months, three of them also presented technical reports.

Two technical reports dealing with studies of the relative safety of joint use at voltages above 5000 volts were presented. One of these, Technical Report 2A-7, deals with the joint use situation at Grand Rapids, Michigan, and vicinity, and the other, Technical Report 2A-8, is entitled "Relative Hazards for Distribution Systems in Nebraska Villages." These reports analyze the various factors affecting the safety of joint use at higher voltages in these particular localities, and compare the situation with the more conventional type of plant. These reports were prepared for the information of the Joint Subcommittee on Development and Research. It is planned to combine several of these studies of specific situations into a technical report giving the more general results.

The project committee dealing with Control of Residuals presented two technical reports, Technical Report 2J-4 entitled "General Considerations in the Use of Neutral Impedance," and Technical Report 2J-5, "Positive Disconnection of Distribution Circuits for Faults to Ground." The former is intended to serve as an introduction to a series of technical reports, each treating a particular phase of the problem associated with the use of a current limiting impedance in power system neutrals. The present report discusses such subjects as the effect of neutral impedance on overvoltage on the power system during phase-to-ground faults and the relation of this voltage to the insulation of the system, the effect on relaying, system stability, equipment damage, etc. Another section of the report treats of the use of neutral impedance from the coordination standpoint alone.

Technical Report 2J-5 is in the nature of an interim report giving the status of work of the committee on the study of positive disconnection of distribution circuits to ground. A large part of the report deals with the reaction of ground relaying of distribution circuits on service reliability. It is pointed out that the coordination of fuses with relay settings at the present time appears to be one of the most important considerations from this standpoint. Data is also given on tree leakage and other self clearing faults, as determined by recording instruments on several selected distribution circuits.

Technical Report 2K-2, "Shielding of Ground Return Circuits at Low Frequencies," has been prepared by the project committee which deals with coupling. This is a companion report to Engineering Report No. 14, "Coupling Factors for Ground Return Circuits—General Considerations and Methods of Calculation," published in Vol. II of Engineering Reports. The report discusses the principles of shielding which are applicable at both the fundamental frequency of power systems, and at voice frequencies. Detailed charts and curves for the calculation of magnetic shielding for various types of shielding circuits are given for 60 and 25 cycles. Methods are given for calculating the shielding due to overhead ground wires, the sheaths of aerial and underground cable, iron armored cable and the shielding interaction of telephone circuits.

All the reports were presented to the Divisions for review and, with the exception of Technical Reports 2A-7 and 2A-8, were submitted with the recommendation that they be made generally

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ELECTRIC POWER NOW FAVORED FOR PIPE LINE PUMPING

The figures covering the electrification of pipe line pumping units presented by Mr. W. H. Stueve, President-Elect, of the Petroleum Electric Power Club, at the meeting of that organization held in Oklahoma City on Nov. 16 to 18, indicate that electric power has come to play a far more important part in the pipe line industry than is generally realized.

During the last year a total of 30,500 horsepower of electric driven pumps have been installed in the United States as against about 6,000 horsepower of oil engines for similar service, thus approximately 80 per cent of the total installations were provided with electric drive.

The outstanding installation was the electrification of fifteen booster stations on the 8-inch pipe line running from Oklahoma to Iowa, Illinois and Minnesota, which is operated by the Great Lakes Pipe Line Company. The main line pumping stations of this line, which has been operating for some time, are located fifty miles apart and are equipped with diesel engines. The installation of the booster stations was made to provide a 50 per cent increase in capacity of the line. All types of power were considered but an electric drive was chosen as being the most economical under the existing conditions. This one line added load in six states as indicated in the following:

State	*Horsepower Connected*
Oklahoma	700
Kansas	2,100
Missouri	700
Iowa	2,600
Illinois	1,200
Minnesota	400
Total	7,700

The Great Lakes Pipe Line was not the only achievement of the year. Other installations of note have been made in Oklahoma, Kansas, Texas and Louisiana, which have resulted in an additional connected load as shown below:

State	*Horsepower Connected*
Oklahoma	6,800
Kansas	1,200
Texas	14,650
Louisiana	200
Total	22,850

One of the determining factors in the acquisition of the Great Lakes Pipe Line pumping load was that twelve companies submitted a uniform form of contract. This contract is the direct result of activities of the Petroleum Electric Power Club over a period of years and, while the actual charges vary to some extent, all companies use the same standard form in submitting the proposals.

It is interesting to compare the past year's achievements with the results of a survey made in 1931, which indicated a total of 876,460 horsepower installed in main trunk line stations throughout the United States, of which 181,160 horsepower, or approximately 20 per cent of the total, was electrified. Mr. Stueve in outlining the potential business and horsepower that can eventually be replaced with purchased power submitted the data shown.

Location of Pipe Lines State	*Oil Engine and Steam Main Line *Total H.P*	***Estimated 1931 Potential Annual Revenue $ @ 32% L F on 2/3 of Installed H.P.*
Arkansas	10,000	$190,000
Illinois	36,600	695,000
Iowa	1,180	22,400
Kansas	41,600	790,000
Missouri	50,400	955,000
Oklahoma	132,500	2,520,000
Texas	228,000	4,330,000
Louisiana	22,800	432,000
		$9,934,400

*80% of Total Main Trunk Stations since 20% is already electrified.
**Estimates prior to Great Lakes Booster installation.

Table I

Illinois, Iowa and Missouri have no important oil fields within their state boundaries and yet these states have a potential annual revenue in excess of $1,700,000. Prior to 1925 the petroleum industry used electric power principally in the production division for drilling and well pumping and in the refining and retailing ends of their business. In 1925 the application of electric power for pipe line pumping came into use but no marked interest was shown in the electrification of the new pipe lines outside of the Mid-Continent area and in California up until 1929. This was due largely to the practice of the oil companies of doing business on short notice, coupled with a general lack of knowledge of the petroleum industry's problems on the part of the electrical industry, as well as confusion regarding conditions of service, forms of contract and rate structures.

Appreciating the difficulties that some of the oil companies had had in attempting to do business with electrical companies, a meeting was called in Kansas City in October, 1930, of representatives of central stations and manufacturers to discuss the situation. The result of this meeting was the organization of an informal group known as the Petroleum Electric Power Club. This informal group grew to the extent where it became necessary to organize on a formal basis, and at the recent meeting in Oklahoma City a constitution was adopted which set forth as the objectives of the Club the following:

A. Economic studies to discover the

(Continued on page 291)

> "The more the electric light and power business knows of the oil business, the better it can serve the oil fraternity. On the other hand, the customer can obtain more satisfactory service if he understands some of the problems with which we are confronted. Every individual in the world is dependent for his happiness and prosperity on the acts and the deeds of other individuals, what is true of individuals is true of business and particularly is it necessary in the electric light and power business that there be a medium of coordinating the efforts of one company with another. We are supposed to be specialists in the electric power field and to know definitely and to be able to prove what we can do for a given business to the end that in the application of the energy we furnish the customer may operate his business with the greatest economy and profit.
>
> "The establishment of proper relationship between the electric company and its customers is just as important if not more so, as furnishing continuous and ample service. The emissary who is to contact with any particular business must be a specialist in that line. For the oil business, he must talk the oil man's language and be familiar with his problems. Part of our job is toward simplification of electric rates. Many factors in cost of service not apparent to user must be there but it is incumbent upon us to incorporate them in the simplest possible form.
>
> "I am of the belief that the use of electricity in the production, the transportation and the refining of oil has but just begun. We should be and are able to furnish a cheaper, more dependable, more ample electric service than any one in the oil business. On the other hand, oil men who are expert in the refining of oil products should be, and are, able to furnish us our lubricating oils much cheaper than we could purchase and refine them. Specialized business, if operated on a basis of mutual understanding is best for the community and best for business. Organizations such as the Petroleum Electric Power Club may do much to bring about conditions whereby this understanding may be the rule and not the exception."—J. F. OWENS, *President, Oklahoma Gas & Electric Company, in a message to the Petroleum Electric Power Club.*

INDUSTRIAL HEATING NEWS

Contributed by Industrial Power & Heating Committee, E.E.I.

GUMMED PAPER DRYING

A printing establishment in Battle Creek, Mich., turns out large quantities of gummed labels. These labels have the gum applied in a continuous gumming machine, from which they are conveyed some distance on a canvas belt to packing boxes. They must be thoroughly dried before they reach the end of this belt and this is no small problem when it is remembered that temperature and humidity conditions greatly affect the rate of drying of the gum. This customer solved the problem by building a low tunnel over the conveyor belt and installing 4 kw in small heating units with reflectors above them for directing their radiated heat down to the work.

INDUCTION OVENS

The Plymouth Division of the Chrysler Motor Car Company has in operation a very unique oven for enameling radiator shells. This oven is a development of E. L. Bailey and represents a number of years of engineering development. The principle used by Mr. Bailey is an old one applied in a new and economical manner.

Instead of passing the radiator shells through an oven heated by the usual methods now employed, the heat is generated directly in the metal radiator shell by passing it through energized coiled wire where heat is set up in the metal by the induction principle. The present oven is a conveyor type tunnel oven with a series of coils located at various points throughout its length, and the work is taken through this tunnel on a conveyor chain.

These coils are energized by approximately 180 cycles, 250 volts from a motor generator set. This frequency and voltage will vary with the size of oven and the type of work being done. The conveyor chain is made from non-magnetic material, and almost the entire poundage being heated consists of the radiator shells.

The efficiency of this type of oven is very obvious and undoubtedly opens up the low temperature field of ovens for electric heat. In this method the work is heated from the inside out, and for enameling purposes the advantages of this are very apparent, inasmuch as it is not necessary to force the volatiles from the enamel that lies closest to the metal out through a top layer of enamel that has been dried first, as in our present methods.

The Chrysler Corporation has now authorized two more of these ovens for enameling wheels and are experimenting on one for drying freshly painted automobile bodies. A New Jersey company has recently made arrangements with Mr. Bailey to handle his new oven.

Industrial heating engineers are very enthusiastic over the possibilities of this new idea of induction heating, and industries are anxious for information concerning it. Mr. Bailey has written an article about his new oven which will appear in an early issue of the *Electrical World*.

SMALL HEATING UNIT MAILING CAMPAIGNS

The Westinghouse Electric and Manufacturing Company, the Edwin L. Wiegand Company, and the General Electric Company have available some effective literature to be used by utilities for direct mail coverage to their industrial customers. A large number of utilities have made use of this campaign material in the past several years with excellent results. Some utilities adopted the campaign of a single manufacturer, others used a combination of material from several manufacturers, and still others used some of the manufacturers' material in connection with some of their own. Reports indicate that all of these campaigns have produced definite results.

The cost of these campaigns when using the various manufacturers' literature consists solely of postage and the work of addressing and mailing. Utilities should not overlook this effective way of building their industrial heating load with these small unit heaters, which today are receiving more attention than any other industrial electric heating equipment.

TAXICAB BODIES

A large manufacturer of taxicab bodies is producing a new model that has a leather covering over the rear curved part of the top. The leather must be worked and smoothed by hand under heat to make it fit these curved portions of the top, and electric heat was adopted for this purpose. Radiant type rod heating elements placed in front of curved chromium plated reflectors furnish the evenly distributed heat necessary for this work. These reflectors are suspended from counterweighted cables so that they can be raised or lowered to suit the job. In this application the advantages of electric heat are very apparent. Inasmuch as the workmen must of necessity work very close to the source of heat, the absence of flame, fumes, and other discomforts many times offsets the cost of the small amount of electricity consumed.

SPRINKLER SYSTEM VALVE HEATING

This is the time of year when industrial plants become concerned about the condition of their automatic sprinkler systems, which must be kept from freezing. It is obvious that electric heating units have no competition in the application of heat to the necessary parts of sprinkling systems.

SELLING SMALL HEATING UNITS

When calling on a power customer the salesman generally has something in his hands. It may be his pencil, his rate book, his slide rule, or any other fumbling device that he usually keeps concealed about his person.

The salesmen of a mid-western utility, instead of using these time honored fumbling devices, take with them when they go to make a call on an industrial customer any one of a number of small electric heating units with which they are provided. Keeping these units in evidence before the customer almost invariably draws a query from him as to its identity and purpose. This leaves the power salesman a golden opportunity for his story on small heating units. This method has proven very successful.

MATERIAL FOR THIS PAGE

This Industrial Heating News Section is one of the activities of the Industrial Heating Subcommittee of the Edison Electric Institute. Printed in the pages of the BULLETIN, it appears one of the best methods for mutual exchange of information in our industry. The Committee urges you to send in short articles of all interesting electric heating applications that you may have. There are undoubtedly many applications that would be of great help to other companies if they could be given a brief description of its details.

Please send this information to D. H. Gerhard, Consumers Power Company, Jackson, Mich.

POWER SALES ITEMS

AIR CONDITIONING

"Conditioning Air for Steel Mill Motors." Electrical World, November 25, 1933, pp. 684-686. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

In the development of an air conditioning system for a certain steel mill, four distinct systems of conditioning were used. All methods are illustrated.

DEPRECIATION—TEXTILE MACHINERY

"Depreciation of Textile Machinery," by A. W. Benoit. Mechanical Engineering, December, 1933, pp. 732-734. American Society of Mechanical Engineers, Publishers, 29 West 39th Street, New York City.

This article discusses—Age or normal life expectancy, wear and tear, obsolescence, setting the rate of depreciation, value of knowing amount of depreciation and methods of figuring depreciation.

ELECTRIC DRIVE

"The Application of Shovel-type Electric Drive to other Types of Materials-Handling Equipment at Pedro de Valdivia," by R. W. Barr. General Electric Review, November, 1933, pp. 478-481. General Electric Company, Publishers, 1 River Road, Schenectady, N. Y.

Variable-voltage Control — Pusher-mule and Ore-bridge Requirements—Experience at Other Localities—Factors in Choice of Shovel-type of Ward-Leonard Control at Pedro de Valdivia Nitrate Plant—Characteristics of Shovel-type Drive as Applied to Mule and Bridges—Performance of Equipment.

"Changing Elevator Drives from Direct to Alternating-current Supply," by C. P. Hamilton. General Electric Review, November, 1933, pp. 486-487. General Electric Company, Publishers, 1 River Road, Schenectady, N. Y.

This article discusses the three possible methods of change-over from D.C. to A.C. current and mentions comparative first costs and operating costs.

ELECTRIC FURNACES

"Controlled-Atmosphere Electric Furnace Bright Anneals Tubing." Electrical World, November 18, 1933, pp. 668-669. McGraw-Hill Publishing Co., Inc., 330 West 42nd Street, New York City.

To meet the mounting demand for copper tubing of first quality and appearance, yet soft enough for a final handling by manufacturers remote from the tubing plant, it has been found economically advantageous to substitute for the ordinary method of annealing and subsequent pickling and cleaning operations a controlled-atmosphere electric furnace.

ELECTRIC MOTORS

"Applying Motors Most Effectively on Machine Tools," by D. K. Frost. Electrical World, December 2, 1933, pp. 716-720. McGraw-Hill Publishing Co., Inc., 330 West 42nd Street, New York City.

In this, the first article of a series, the author discusses desirable degrees of motor inclosure, preferable methods of mounting and characteristics that are available for different duties. In later articles he will discuss control and wiring for machine tools.

"Protecting Squirrel-Cage Winding of Synchronous Motors," by M. N. Halberg. Electrical World, November 11, 1933, p. 627. McGraw-Hill Publishing Co., Inc., 330 West 42nd Street, New York City.

There recently has been perfected a special relay, the sole function of which is to protect the squirrel-cage winding from overheating when operating out of synchronism.

"The Speed-torque Curves of a Series Motor," by Arthur A. Merrill. General Electric Review, October, 1933, pp. 431-440. General Electric Company, Publishers, 1 River Road, Schenectady, N. Y.

Characteristics of a Typical Motor as Influenced by Method of Connecting to Line—Application to Hoisting Duty as a Typical Case—Four-quadrant Curves Depict Complete Range of Performance—Relative Effectiveness of Various Connections—Calculation of Curves.

INDUSTRIAL PLANTS—POWER

"Steam and Power Supply," by Vern E. Alden. Mechanical Engineering, November, 1933, pp. 667-672. American Society of Mechanical Engineers, Publishers, 29 West 39th Street, New York City.

Some General Factors to be Considered in Planning Steam and Power Projects for Industrial Plants.

INTERCHANGE

"Interchanging Steam and Electric Power," by H. Drake Harkins. Mechanical Engineering, December, 1933, pp. 741-747. American Society of Mechanical Engineers, Publishers, 29 West 39th Street, New York City.

This article discusses cooperation between industrial and public utility companies in generating steam and electricity.

POWER FACTOR

"Commercial Power-factor Measurements," by R. M. Rowell. General Electric Review, November, 1933, pp. 493-500. General Electric Company, Publishers, 1 River Road, Schenectady, N. Y.

The Knowledge of Power Factor Required for Operation and That for Billing, etc.—The Various Indicating, Recording, and Integrating Instruments and Meters That Have Been Used for Power-factor Determination—Their Performance Under Commercial Operating Conditions.

ELECTRICAL EQUIPMENT COMMITTEE

(Continued from page 287)

The topics to be studied are as follows:

1. Outage time for major repairs.
2. D-C voltage control.
3. Recirculation of cooling water.
4. Higher installation costs.
5. Telephone interference.
6. Sealing arrangement.

The importance of the rectifier is shown by the fact that in the short space of seven years the installed capacity of rectifiers in the United States and Canada has increased from practically nothing to over 500,000 kilowatts.

Grounding

An outline of a report on Protector Grounding was presented and discussed in detail. A draft of a report in accordance with this outline will be prepared by Mr. Green, under the supervision of Mr. Dean, the sponsor for this subject.

Accident Prevention

Each of the three Engineering Committees has been charged with the responsibility of accident prevention work in its respective field. In order that this work may be effectively coordinated the chairman is planning to appoint a sponsor on accident prevention work to cooperate with similar representatives of the other two committees. The Transmission and Distribution Committee representative will act as chairman of this group.

Investment Studies

At the meeting last June the committee decided that in view of existing conditions there was little need for carrying on active work on investment studies. However, in view of changed conditions the committee agreed that the subject should be actively taken up.

JOINT COMMITTEE ON DEVELOPMENT AND RESEARCH

(Continued from page 286)

available after such revisions as may be suggested by the members of the Divisions have been incorporated. When the reports are available for general distribution announcement will be made in the E.E.I. Bulletin.

Prior to the Joint Subcommittee meeting the E.E.I. representatives on Division 1 and 2 met on December 6. At this meeting the work of the various project committees was reviewed and the technical reports discussed. Mr. A. E. Silver presided, and about twenty representatives were present.

ELECTRIC POWER FAVORED

(Continued from page 288)

most suitable methods of rendering the petroleum industry electric service.

B. An effort to standardize the character of service to make it more advantageous to the oil industry.

C. Cooperation with other organizations concerned with the petroleum industry.

D. To promote among its membership an informal interchange of ideas, practices, ethics and procedures having to do with better serving the petroleum industry.

The activities of the Club now include all aspects of the petroleum industry which might possibly be subject to electrification. Among the achievements of the Club to date, one of the foremost is the awakening of the electrical industry to the need for cooperative effort in solving the problems of electric service in the petroleum industry. Evidence of this is manifested in the growth of the Club, which now includes all of the major electric utilities operating in the Mid-Continent area. Another accomplishment of the first rank is that for the first time in the history of the industry men engaged in the sale of power in the Mid-Continent section have had an opportunity to get together and become acquainted and discuss in their own way the common problems. Opportunity has also been given the executives of oil companies to cooperate in the work of the Club and to criticize and make suggestions for improvement of any or all of the services of the utilities concerned. The most difficult achievement to date has been the preparation of a uniform form of contract. The suggested form of contract, which is still in a tentative form, is the result of an analysis of some forty-four contract forms in use by twenty-one operating companies, and it is also modified to conform in some aspects to the express wishes of the petroleum industry.

While this article points out primarily the accomplishments in the pipe line pumping field, which, according to some authorities, represents a very small portion of the possible electrification of the petroleum industry, a later article will go into more detail covering the potential load of the production and refining divisions. The progress made along the lines of a uniform form of contract will also be discussed in detail at a later date.

—*A. B. Morgan.*

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CONVENTIONS AND MEETINGS

DECEMBER

4-9 American Society of Mechanical Engineers, Engineering Society Bldg., New York, N. Y.
6-8 National Society of Refrigerating Engineers, New York Hotel, New York, N. Y.

JANUARY

22-25 Society of Automotive Engineers, Detroit, Mich.
23-26 American Institute of Electrical Engineers, New York, N. Y.

FEBRUARY

5-8 American Society of Heating and Ventilating Engineers, Hotel Biltmore, New York, N. Y.

MAY

1- 4 Chamber of Commerce of the United States of America, Washington, D. C.
14-18 National Fire Protection Association, Haddon Hall, Atlantic City, N. J.
24 National Board of Fire Underwriters, Waldorf-Astoria Hotel, New York, N. Y.

JUNE

18-21 National Association of Purchasing Agents, Hotel Cleveland, Cleveland, Ohio.
25-29 American Institute of Electrical Engineers, The Homestead, Hot Springs, Va.

SALES COMMITTEE MEETS

(Continued from page 284)

stances as high as 50 per cent. The field now awaits word on an expanded national program, and it is expected that meetings during the latter part of the month will definitely determine future action.

G. N. Brown, manager of the Electric Refrigeration Bureau, presented a report on electric refrigeration. Sales results, together with the results of Electric Refrigeration Week Contest, appear on other pages of this issue of the BULLETIN. A holiday window display contest is now being conducted to terminate on Christmas Day, with $700 in prizes offered to distributors, dealers and utilities. There were 35,000 folders distributed to stimulate interest in this final activity of the year.

Following the reports of Mr. Trumbull and Mr. Brown, the following resolution was offered and passed by the Sales Committee:

RESOLVED: That the Sales Committee of the Edison Electric Institute recognizes industry advantages to be gained in the organized, coordinated, promotional programs as exemplified in the Electric Refrigeration Bureau and the National Electric Cookery Council;

That the common benefits already gained through the Electric Refrigeration Bureau and the National Electric Cookery Council such as stimulated sales activity and improved manufacturer-utility-dealer relationships in load building should continue to be encouraged,

And, therefore the Sales Committee of the Institute urges continuing support of the electrical manufacturer groups for the Electric Refrigeration Bureau and the National Electric Cookery Council.

RECENT PUBLICATIONS

A number of reports, prepared by committees of the National Electric Light Association prior to their dissolution, were transferred to the Edison Electric Institute by the Liquidating Committee of the N.E.L.A. Because of the value to the industry of the material contained in the reports they have been published by the Institute and may be purchased at the following prices:

Pub. No.	*Foreign Systems Coordination Committee*	*Price to Members*	*Price to Non-Members*	*Price to Foreign Countries*
A13	Power System Wave Shape	$0.20	$0.50	$0.60
	Hydraulic Power Committee			
A18	Economic Design of Hydro-Electric Plants	.20	.50	.60
A19	Hydraulic Governors	.20	.50	.60
	Power Systems Engineering Committee			
A16	Load and Revenue Forecasting	.30	.75	.85
A11	Load Area Development	.30	.75	.85
	Prime Movers Committee			
A4	Burning of Liquid and Gaseous Fuels	.30	.75	.85
A5	Power Station Chemistry	.40	1.00	1.10
A6	Pulverized Fuel	.75	1.85	2.00
A2	Station Piping	.60	1.50	1.60
A7	Stoker Equipment and Furnaces	.60	1.50	1.60
A3	Turbines	.75	1.85	2.00
	Underground Systems Committee			
A9	A-C Network Operation—1931	.20	.50	.60
A10	Cable Operation—1932	.45	1.15	1.25
A14	Current Carrying Capacity of Impregnated Paper Insulated Cable	.25	.65	.85
A12	Fault Locating Methods Used on Underground Cable Systems	.40	1.00	1.10
	Sales Section			
A15	Electric Roasting Ovens	.20	.50	.60
A17	Promotion of Home Air Conditioning	.20	.50	.60
	Statistical			
A1	The Electric Light and Power Industry, 1932	.30	.75	.85

The prices include mailing charges. Member prices apply to employees of company members of the Institute. Please send money order or check with order. Orders should be addressed to—

EDISON ELECTRIC INSTITUTE
420 Lexington Avenue, New York, N. Y.

The Institute has in stock a limited number of reports prepared by Engineering Committees of the former National Electric Light Association during the past several years. These reports may be ordered from the Institute from the price lists issued by the N.E.L.A., or a new list will be forwarded upon request.

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